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*bulletin of*  
**Duke University**  
**1989-90**

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*School of Forestry and  
Environmental Studies*





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**1989-90**

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*School of Forestry and  
Environmental Studies*

EDITOR  
Judy Smith  
SENIOR EDITORIAL ASSISTANT  
Elizabeth Matheson

BULLETIN COORDINATOR  
Mary L. Matthews  
School of Forestry and Environmental Studies

---

PHOTOGRAPHS

David Gilluly  
Lee Krohn  
Janet Ohmann  
Douglas Powell  
John McKelvey  
Les Todd  
Jim Wallace

---

COVER DESIGN

Judy Smith

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Elizabeth Madzsar, M.S., *Associate in Research*

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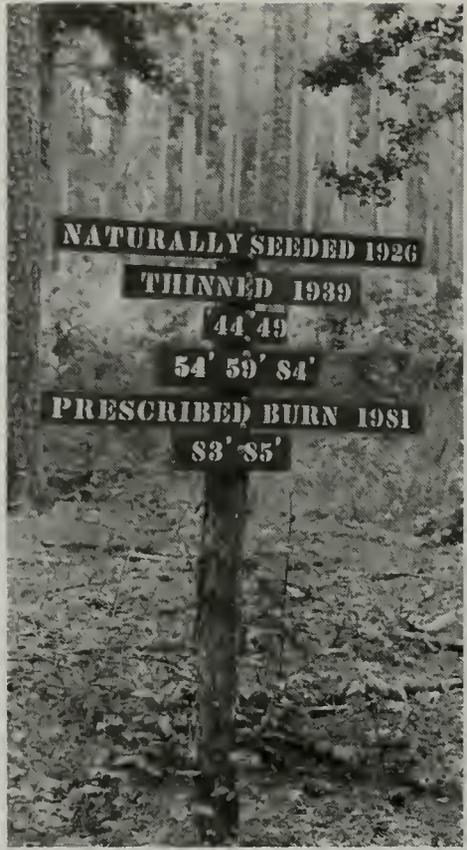
George Pendergraft, *Grounds Maintenance Supervisor*

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Valinda Wilkins, *Staff Specialist*



# School of Forestry and Environmental Studies Calendar\*

## 1989

<b>August</b>		
21		Orientation for fall semester
23-24		Registration of new and nonregistered returning students
28		Fall semester classes begin
29		Drop/add begins
<b>September</b>		
8		Drop/add ends
<b>October</b>		
16-17		Fall break
<b>November</b>		
6-7		Registration for spring semester, 1990
22-26		Thanksgiving recess (begins at 12:30 p.m. Wednesday)
<b>December</b>		
1		Fall semester classes end
2-10		Graduate reading period
11-16		Final examinations

## 1990

<b>January</b>		
8		Orientation for spring semester
10		Registration of new and nonregistered returning students
11		Spring semester classes begin
12-24		Drop/add
<b>March</b>		
12-18		Spring break
<b>April</b>		
2-3		Registration for fall semester, 1990
20		Spring semester classes end
21-29		Graduate reading period
30		Final examinations begin
<b>May</b>		
5		Final examinations end
13		Commencement

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\*The dates in this calendar are tentative and subject to change.



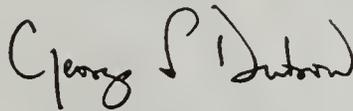


## To the Prospective Student

"Today's leaders for tomorrow's challenges" is a slogan that accurately describes the mission of the School of Forestry and Environmental Studies. Since its founding in 1938, the school has been dedicated to research and education designed to prepare professionals, scientists and academics to analyze a broad range of natural resource and environmental problems—and devise workable solutions. As we move into the next century, global environmental and economic concerns will increasingly demand well-trained professionals who can make sound decisions concerning the management of our natural resources.

Our quantitative, interdisciplinary programs are designed to meet this need. Our faculty is addressing important questions of forest resource management, ecology, ecotoxicology, water and air quality, and resource economics and policy. At Duke we can draw upon the resources of a major university, an 8,300-acre research forest, and a host of organizations in the surrounding Research Triangle area. Our graduates are among the leaders of the nation's largest forest industries and environmental consulting firms, as well as the public agencies that monitor, manage, and regulate natural resources and the environment. We are confident that we are among the best at what we do.

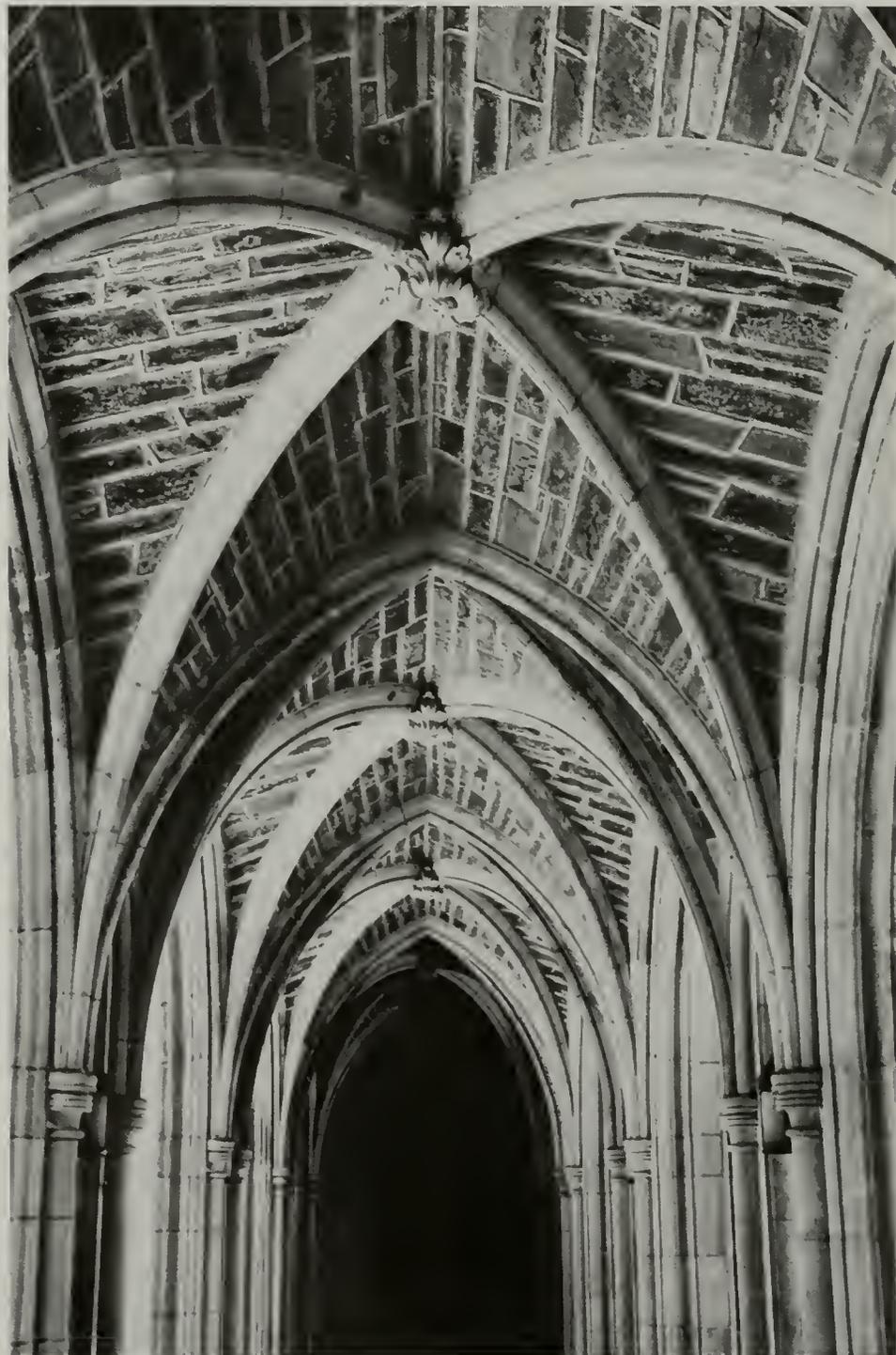
Our objective, however, is not merely research published or students graduated. It is wise and sustained management of our natural resources and a better environment for this and future generations. We invite you to join us in pursuit of these goals.



George F. Dutrow  
*Dean, School of Forestry and  
Environmental Studies*

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## *General Information*



## Objectives

The School of Forestry and Environmental Studies pursues a broadly based program of research and education at the graduate level. Its programs are designed to educate professionals, scientists, and academics to analyze a wide range of environmental and natural resource problems.

In its fifty years of forestry research and education at Duke, the school has shifted from a focus on woodland productivity and protection to a focus on ecosystem productivity and protection. The land and its associated components, including plant and animal communities, water, and air, are integral parts of the orientation of the school. The emphasis is on defining objectives for forest and natural resource management, understanding the interrelated constraints—physical, biological, ecological, economic, legal, and social—and devising and testing alternative management solutions. Problem analysis is the central focus of all programs of the school. The student will learn the capabilities and limitations of quantitative analysis and seek imaginative solutions for problems requiring a qualitative approach.

The school is particularly interested in the development of a holistic view of the environment and natural resources. This viewpoint requires the application of knowledge from the natural, social, and management sciences. Students are encouraged to integrate studies in natural resource science, systems science, economics, and policy in the pursuit of a particular program of study. The approach is first to identify problems, then to synthesize information, to develop critical analyses, and finally to plan and design solutions.

This approach is pursued by research, formal courses, seminars, field studies, and special conferences and symposia. Informal contact among students, faculty, alumni, and practicing professionals forms a strong part of the program. A number of academic and professional disciplines are represented on the faculty, and practicing professionals are frequently involved in teaching as well as in research. Several government career employees are usually in residence as adjunct faculty members.

The school periodically sponsors conferences and symposia on subjects of major interest and concern to persons involved in resource management. These offer current viewpoints of outstanding individuals concerned with various aspects of natural resources and the environment.

Programs are designed for students drawn from a wide variety of undergraduate backgrounds in the natural and social sciences and from programs in forestry, engineering, business, and environmental studies. The goal is to help all students acquire the basic technical skills, knowledge, insight, and methods of analysis for solving natural resource and environmental problems.

## History

Duke University developed from Union Institute, a small school established in 1838 in Randolph County, North Carolina. The name was changed to Normal College in 1851, and in 1859, to Trinity College. The college was moved to Durham in 1892. With the establishment of the James B. Duke Indenture of Trust in 1924, Trinity College became Duke University. At the outset, the University developed around a core of undergraduate programs. Later the Graduate School and professional schools of Medicine, Nursing, Law, Engineering, Divinity, and Business Administration were added. In 1932, forestry instruction was offered for students of Trinity College, and in 1938 the School of Forestry was established as a graduate professional school under the direction of Dean Clarence F. Korstian. The Master of Forestry degree was offered initially and later the A.M., M.S., and Ph.D. were offered through the Graduate School. The school's forestry program has been fully accredited by the Society of American Foresters since 1939.

Dr. Korstian joined the faculty in 1931 as the first director of the Duke Forest. Brought to Durham by Dr. William P. Few, president of Duke at the time, Dr. Korstian set out to develop a "demonstration and research forest" that would serve as a model for owners of small tracts of timber in the South. During this period and for a number of years to follow, research focused primarily on problems of culture, management, and utilization of the softwoods and hardwoods of southern forests.

During the 1930s the faculty of the school was gradually expanded to include a number of research foresters who made substantial contributions to forestry in the Southeast. William Maughan, who specialized in forest management, joined the faculty in 1931. In 1935, Theodore S. Coile, a specialist in forest soils, was added to the faculty. Ellwood S. Harrar, a wood technologist, and Francis X. Schumacher, widely known for his contribution to forest measurements, arrived at Duke in 1937. In 1939, the school rounded out its initial faculty with three distinguished scientists: Roy B. Thomson in economics, James A. Beal in entomology, and Albert E. Wackerman in forest utilization. This faculty established and brought early recognition to the school. Later, faculty were added in silviculture, pathology, physiology, ecology, and biometeorology.

The expanded faculty was soon responsible for shifting the emphasis from southern forestry to research and teaching of forestry with a national and international point of view. Consequently, graduates of the school have found employment in public agencies, forest industries, education, and research in all parts of the nation.

Growing national concern with natural resources and environmental problems led to a new teaching and research emphasis in the 1970s. A new program in natural resource ecology, focusing on ecologically based land use planning, was added to the traditional forest science and management curriculum. In 1974 the name was changed to the School of Forestry and Environmental Studies and a new degree was added, the Master of Environmental Management.

## Location

Duke University is situated on the outskirts of Durham, a city of over 100,000 inhabitants, in the central piedmont region of North Carolina. The Appalachian escarpment lies approximately 100 miles to the west of Durham and the coastal plain is but a short distance to the east. The school is thus ideally situated near areas of ecological and topographic diversity which offer many opportunities for study as well as recreation.

Piedmont North Carolina is characterized by a rolling, forested topography interspersed with small farms and rural communities in addition to the state's largest cities. The climax forests of the piedmont are hardwoods; however, human disturbance has resulted in the establishment of many forests of the native southern pines. It is in regions like piedmont North Carolina that many of the nonindustrial private forests of the United

States are located. These forests are destined to provide much of the increase of wood and wood fiber to be needed by the United States in the twenty-first century.

The southern Appalachians are widely known for their unusual history, picturesque topography, and wide range of flora and fauna. Here the typical hardwood forests which dominate at lower elevations give way to forests of spruce and fir at higher elevations. These forests supply a variety of specialty woods for North Carolina furniture manufacturers and for other industries. The region's numerous recreation areas are widely used for hiking, fishing, skiing, and other outdoor activities.

The coastal plain of North Carolina, well known for its agricultural production, is used extensively by many of the nation's forest industries for plantations of the native pines. The extent of the intensive forestry practices in the coastal plains of North Carolina and other southern states is unmatched elsewhere in the world.

Coastal wetlands and estuaries, now recognized as one of the nurseries of world fisheries, offer abundant and valuable natural resources. North Carolina's Outer Banks and the barrier islands of the other southeastern states serve as protection for these coastal waters. The rapidly increasing population and development in this region make proper management of its natural resources particularly important to the nation.

Because of the school's central location near these regions of vital ecological importance, students are afforded the opportunity to study many current environmental problems in the field. Both the opportunity and the challenge exist to analyze these pressing problems and to develop sound approaches to their management.

## Facilities

The School of Forestry and Environmental Studies is housed in the south wing of the Biological Sciences Building on the West Campus. Laboratory and supporting facilities are provided for both teaching and research in all subject matter areas offered in the school. Classrooms and seminar rooms are available in the school and in other parts of the building. A clubroom, offices, general study space, and computer laboratories are provided for students.

*Computer Facilities.* The Duke University Center for Academic Computing provides a wide range of facilities and services for the Duke community. Several clusters of interactive data terminals and personal computers are maintained in various locations on campus. The data terminals, connected to Duke's Equinox data switch, allow users to selectively access on-campus resources, such as the AT&T 3B2 minicomputers and the on-line Bibliographic Information System, or to connect to the Triangle Universities Computation Center (TUCC) mainframe system via high-speed microwave transmission. The TUCC system, a regional computer network centered in the nearby Research Triangle Park, includes an IBM 3081 computer and an FPS-164 attached processor. TUCC users also have access to the BITNET system which allows electronic communication with most other universities in the United States. Services offered by the Center for Academic Computing include general consulting, a free newsletter, and a regular series of short courses. Faculty and students in the School of Forestry and Environmental Studies have 24-hour access to a cluster of interactive terminals in the Biological Sciences Building as well as the school's own microcomputer laboratory. Personal computer workshops are conducted by school staff at the beginning of each semester.

*Libraries.* The combined university libraries, including the main Perkins Library and twelve other school or branch libraries, contain over 3,300,000 volumes. About 150,000 volumes are added annually. Approximately 10,300 periodicals and over 166 newspapers are received. The Biology-Forestry Library, located in the Biological Sciences Building, contains about 125,000 volumes, and receives about 900 periodicals.

*Greenhouses and the Phytotron.* Adjoining the Biological Sciences Building are excellent facilities for biological investigations under controlled conditions. The phytotron



contains fifty separately controlled growth chambers and greenhouses which can be used to grow plants under a variety of environmental conditions. The phytotron is one of few such facilities in the United States.

*Research Triangle Park.* Numerous industrial and governmental organizations have established research facilities in the Research Triangle Park, ten miles from the Duke campus. Government facilities include the National Environmental Research Center of the Environmental Protection Agency, the Forestry Sciences Laboratory of the United States Forest Service Southeastern Forest Experiment Station, and the National Institute of Environmental Health Sciences. These laboratories provide opportunities for student research and internships in some of the most advanced facilities in the nation.

*Neighboring Universities.* Through a reciprocal agreement, Duke students may supplement their education in forestry and environmental studies by taking courses in related fields at the University of North Carolina in Chapel Hill, North Carolina State University in Raleigh, and North Carolina Central University in Durham. Graduate students of Duke University and the University of North Carolina at Chapel Hill are granted library loan privileges in both universities.

## The Duke Forest

The Duke Forest comprises approximately 8,300 acres of land in five major divisions and several smaller tracts. A ten-minute walk from campus will take one well into many parts of the Durham Division, and a network of roads and fire trails makes almost all areas of the forest easily accessible.

The forest lies primarily in Durham and Orange counties, near the eastern edge of the piedmont plateau, and supports a cross section of the woodlands found in the upper coastal plain and lower piedmont of the Southeast. A variety of timber types, plant species, soils, topography and past land use conditions are represented. Elevations range from 260 to 760 feet. Soils of the region are derived from such diverse parent materials as metamorphic rock of the Carolina slate formation, granite, Triassic sedimentary rock, and basic intrusives.

The Duke Forest, as it is known today, had its origins in the mid-1920s when the University administration bought many small farms and interspersed forest land as buffer areas for the main campus and as an investment for the future. The forest was placed under intensive management in 1931 by Dr. Clarence Korstian, its first director. In its early development, several basic objectives were emphasized: (1) demonstration of timber management techniques on a practical and economic basis, (2) development of an experimental forest for research in the sciences associated with timber growing, and (3) development of the area as an outdoor laboratory for students of forestry.

Modification of these early objectives has arisen, in part, through a greatly increased interest and dependence on the forest for research in the areas of zoology, botany, and ecology by faculty and students at Duke and neighboring universities. Background information useful to researchers is provided by the forest; it covers such features as soils, topography, inventory, plantation, and cultural records as well as a bibliography of past and current studies. Current work on problems associated with developmental pressures at the urban-rural interface and integrated approaches to natural resource management have multiplied the forest's value and benefit as a resource.

Since 1976, the Duke Forest has been included in a nationwide network of research sites selected by the Institute of Ecology under a program sponsored by the National Science Foundation. These sites, designated as experimental ecological reserves, were selected to provide a wide range of conditions and habitat types for long-term scientific research in a multitude of disciplines.

The forest also serves in an educational and recreational capacity for residents of the Durham and Chapel Hill communities. Hiking, picnicking, jogging, and nature study are particularly popular pastimes.

This natural outdoor laboratory is an invaluable supplement to the instructional, research, and recreational facilities of the school, the University, and the region.

A comprehensive forest management plan, completed in 1981, provides a framework of basic guidelines and policies enabling effective utilization of the forest's potential. Development of the management plan was coordinated by a team of faculty, staff, and students representing a broad range of disciplines. Timber management, recreation, water quality, unique plant communities, historical and archaeological sites, and data management are a few of the criteria that were studied as part of the planning process. The plan concentrates on overlaying compatible uses of the forest in as many areas as possible. The completed document facilitates sound management and decision making, and it is flexible enough to allow adaptation to the changing needs and interests of all users of the forest.

The forest provides assistantships to several students in the school each year. Some of these are associated with research, others with the day-to-day operation and management of the forest.

## The Faculty

The faculty of the School of Forestry and Environmental Studies specialize in diverse areas of natural resources and the environment. They are committed to excellence in teaching and to the development of research on current environmental issues facing the nation. A favorable faculty-student ratio insures small classes, individualized instruction, and careful supervision of independent study.

Highly qualified professionals from the United States Forest Service, forestry consulting firms, conservation organizations, and other areas of specialization serve as adjunct faculty members. Professors in botany, engineering, history, and marine science at Duke and the Department of City and Regional Planning at the University of North Carolina also hold joint appointments on the faculty. Scholars from foundations, private industry, and government service often visit the school to conduct conferences and symposia, to consult with faculty and students, and to teach special courses.

The faculty is engaged in a dynamic program of research, much of which is oriented toward the analysis of contemporary natural resource and environmental problems. Students are encouraged to assist in these projects to involve themselves in real world situations. Many of the continuing areas of faculty research are described in the faculty section of this bulletin. Some faculty members are also involved in the development of case studies, a new approach to graduate training in resource ecology and management.

The school enjoys close relationships with other professional schools and departments within the University as well as at neighboring institutions. Duke's departments of botany and economics, the School of Engineering, and the Institute of Policy Sciences and Public Affairs, for example, offer courses which are highly complementary to forestry and environmental studies. Faculty from these and other departments and institutions actively cooperate in research projects and sit on the graduate committees of students in the school.

## The Students

A typical entering class at the School of Forestry and Environmental Studies consists of approximately sixty professional students from diverse backgrounds and geographic areas. In an average class, 34 percent of the students are from the northeast United States and 30 percent are from the South. Approximately 22 percent come from the Midwest and 8 percent from the Far West. Foreign students usually make up about 9 percent of the entering class. Thirty-eight percent of the students are women. Ages of all students have ranged from twenty to fifty-two, although the majority are twenty-five and under.



Educational backgrounds of the professional students are equally varied. On the average, 39 percent have undergraduate majors in the natural sciences. Thirty-three percent have majors in either forestry, environmental science or earth science. Approximately 14 percent majored in the social sciences and 9 percent in the humanities. An additional 17 percent have dual majors and 7 percent have advanced degrees.

## **Publications**

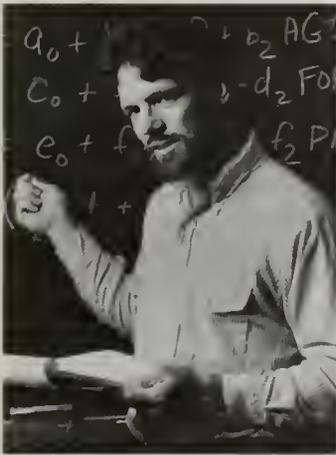
The Office of Resource and Environmental Publications serves as the center for publications issued by the School of Forestry and Environmental Studies. *FOREM* (an acronym for forestry and environmental management) is a news magazine that reflects all aspects of the school's current activities and achievements, with an emphasis on research. Published twice a year, it is mailed to alumni of the school and to other individuals and organizations throughout the United States upon request. Other regular publications include announcements of intensive courses, conferences, and special programs; and a student resume book. Technical bulletins and conference proceedings are published as part of a continuing series.

The office is under the direction of a publications specialist. Assistantships are offered to students who have photographic, journalistic, or artistic skills.

*The Faculty*



## Resident Faculty



**Ralph J. Alig**, Ph.D., *Adjunct Assistant Professor*; B.S., Forest Production and Wood Technology, Purdue University; M.S., Forest Economics, University of Missouri; Ph.D., Forest Economics, Oregon State University.

An economist with the USDA Forest Service, Dr. Alig is interested in determinants of area changes for major land uses and forest cover types, methods for projecting associated area changes on a regional scale, and economic returns of forestland management alternatives. These are closely related areas of investigation that require consideration of the economics of land use and forestland management, landowner investment behavior and response to market and non-market incentives, and ecological processes of forest development and cover changes. Findings from the

research pertaining to land use change, forestland management, and owner behavior provide a basis for developing long-range projection models that support forecasting of timber and other natural resource supplies at regional and national levels. A recent advance is the development of a model for the southern United States. This system has greatly improved the capability to systematically examine the impacts of land use and cover type changes on timber, range, wildlife, and water resources.

Future work will include examination of the relationship between international land use changes and forest area changes in the South as well as other regions of the United States. Dr. Alig also will be involved in the development and application of quantitative techniques for projecting forest type transitions in northern forest ecosystems, analysis of forest investment behavior in relation to government programs such as the Conservation Reserve Program of the 1985 Farm Bill, examination of the importance of risk in land use and management decisions by private landowners, and forest development on abandoned or idle crop and pasture land.



**Alexander T. Davison**, M.F., *Adjunct Assistant Professor*; B.S., Botany, M.F., Forest Entomology, Duke University.

Because his primary activity is consulting in forest land management, Professor Davison's research interests are in those areas that have application to that field. One of his primary interests is the use of aerial photographic interpretation to trace land use history, to facilitate forest management, such as in laying out harvesting roads in western North Carolina, and to increase the efficiency of forest inventory. Further interests lie in small, private timberland ownerships, particularly in problems involving the enhancement of forestry and wildlife management.

For the past several years, Professor Davison has been involved in the establishment and use of the state park network, and has conducted a land use study of the area surrounding one of the North Carolina's scenic rivers.



**Richard T. Di Giulio**, Ph.D., *Assistant Professor*; B.A., University of Texas; M.S., Wildlife Management, Louisiana State University; Ph.D., Wildlife Biology, Virginia Polytechnic Institute and State University.

Dr. Di Giulio's research group in ecotoxicology is most concerned with biochemical responses of lower vertebrates to environmental contaminants. A key focus involves the application of oxygen toxicity theory to the development of a sensitive methodology for detecting sublethal stress in aquatic animals, particularly fish, exposed to complex effluents or contaminated sediments. The underlying idea here is that a great number of important contaminants representing a variety of chemical structures are toxic at least in part due to their ability to generate free radical intermediates, including oxygen radicals. The

group is also employing this approach to explore the biochemical mechanisms underlying the effects of air pollutants on forest vegetation.

In a related vein, Dr. Di Giulio is examining the mechanism of paraquat-induced teratogenesis in avian embryos. Additionally, he is performing collaborative research examining the comparative neurotoxicology of several insecticides in aquatic organisms, both vertebrates and invertebrates. Another area of research involves the study of trace metal dynamics in wetland ecosystems, particularly waterfowl food chains.

In summary, Dr. Di Giulio's research interests are in basic research relative to the entire field described as ecotoxicology. He believes that an important obstacle to solving ecotoxicological problems is the inadequacy of information concerning basic responses of lower organisms to contaminants and realistic contaminant mixtures. He is interested in supplying some of the needed information.



**George F. Dutrow**, Ph.D., *Professor*; B.S., General Science, M.F., Wood Technology, Ph.D., Forest Economics, Duke University.

Dr. Dutrow's research interests are directed toward three main areas: (1) economic opportunities to increase national timber supplies, (2) economic efficiency of private and public programs of forestry assistance, and (3) international issues of forestry and environmental management. These research areas are being addressed cooperatively with scientists from industry, government, and other universities.

His personal research and research leadership are concentrated in two areas. First, he is engaged in addressing nationwide economic opportunities to increase forest productivity to meet national timber supply goals. This research assists government leaders

and corporate executives to formulate effective policies and programs for United States forest resources. Second, he is involved in selecting and directing a team of research economists to define private forestry enterprises in Latin America, Africa, and Asia. The purpose of this effort is to determine how forestry enterprises can be established in developing countries, become viable, and compete in world markets.



**Bruce C. Faust**, Ph.D., *Research Assistant Professor*; B.C.E., Civil and Environmental Engineering, University of Minnesota at Minneapolis; Ph.D., Environmental Engineering Science, California Institute of Technology.

Dr. Faust is interested in fundamental research on environmental chemistry and photochemistry that (1) has direct applicability to current environmental problems, and (2) can be generalized beyond the scope of the original problem. The primary objectives of his research are to identify and to understand chemical and photochemical reactions that control, or can be used to control, the fate of compounds or elements of environmental concern in natural or engineered (treatment) systems. He is interested in understanding these reactions at a mechanistic level and

in quantifying their reaction rates. Such information is necessary to accurately predict the fate of compounds in natural waters or the efficiency of compound removal in treatment processes.

Dr. Faust's current areas of research include oxidation/reduction reactions that degrade pollutants and hazardous wastes in natural waters (atmospheric, surface, or ground waters) or in treatment processes. Reactions that significantly influence the geochemical cycling, bioavailability, or toxicity of specific elements and compounds are also of interest. The emphasis of his current investigations is on photochemical reactions that play important roles in chemical transformations occurring in sunlit atmospheric and surface waters, and photochemical reactions for the treatment of hazardous wastes.



**Robert G. Healy, Ph.D.,** *Adjunct Associate Professor; B.A., Economics and English, M.A., Ph.D., Economics, University of California, Los Angeles.*

A senior associate with The Conservation Foundation/World Wildlife Fund in Washington, D.C., Dr. Healy conducts and manages research on natural resource and environmental policy. Past research has resulted in books on state land use planning, coastal zone management in California, national forest policy, and resource and environmental problems of United States agriculture. He recently completed a major study of land use competition in the U.S. South that considered demand and technology patterns in agriculture, forestry, cattle grazing and urbanization, and evaluated impacts on "unpriced" environmental values. He has a continuing interest in land use

policy in fast-growing areas, including the South.

Dr. Healy's other research is increasingly concerned with reconciling Third World development with sustainable use of natural resources and maintenance of environmental quality. Specific research interests include environmental problems of Mexico and Central America, economic management of lands adjoining parks and nature reserves, and economic impacts on environmental tourism. Since 1987 he has directed a year-long seminar in natural resource policy for government officials, offered through the Duke University Center for International Development Research. In the School of Forestry and Environmental Studies, he teaches courses in land use policy and international environmental management.



**Kenneth R. Knoerr, Ph.D.,** *Professor; B.S.F., Forestry, University of Idaho; M.F., Forestry, Ph.D., Yale University.*

Dr. Knoerr's research emphasizes investigations of the processes by which plants interact with the atmosphere. This research is approached from two perspectives. The first is the development of physical models for the plant-environment interaction. The second, in parallel with the modeling, is an extensive experimental effort to collect data on the gradients of radiation, wind, temperature, humidity, carbon dioxide and other environmental parameters that characterize the microclimate of forests and other vegetation.

His research group is involved in an intensive study to measure and model the characteristics of air flow within the forest. These models will increase the understanding of the turbulent exchange of gases between forest vegetation and the atmosphere, the diffusion patterns of disease spores and pollen within the forest, and the mechanisms by which forests remove aerosols from the atmosphere.

Dr. Knoerr and his associates are also studying wet and dry deposition of sulfate, nitrate, and other pollutants from the atmosphere. His research group is developing improved measurement techniques which are important both to improve estimates of total acid deposition and to evaluate the effects of this deposition on vegetation.



**Douglas A. MacKinnon**, M.F., *Professor of the Practice of Resource Management*; B.S., Industrial Administration, M.F., Industrial Forestry, Yale University.

Professor MacKinnon is the project administrator for the Forestry Private Enterprise Initiative, a cooperative research and demonstration project sponsored by the Agency for International Development, which provides technical assistance to the forest-based private enterprise sector of developing economies. A graduate of the Stanford University Executive Program, he spent fifteen years with several firms in the forest products industry, holding various positions in manufacturing, land management, long-range planning and capital budgeting. For eight years he was a member of the faculty at the University of Michigan, School of Forest Resources, and was chair-

man of the forest resources program during his last five years there. He has been active as a consultant and is author of numerous reports and articles. The most recent of these deal with the fundamentals of capital investments, analysis of managerial systems, and timber sales accounting systems.

In addition to teaching courses in the business aspects of natural resources, Professor MacKinnon is responsible for organizing the Laird, Norton Distinguished Visitor Series each spring and a field trip to the western United States in early May. His research interests include planning, managerial decision making and control in both the public and private sectors.



**Lynn A. Maguire**, Ph.D., *Assistant Professor*; A.B., Biology, Harvard University; M.S., Resource Ecology, University of Michigan; Ph.D., Ecology, Utah State University.

The major area of Dr. Maguire's current research is the application of formal techniques for decision making under uncertainty and population modeling to the management of endangered species. Decision analysis provides a framework for integrating scientific information from ecological theory, stochastic population models, and empirical studies with economic and public policy considerations affecting the management of endangered species populations. Dr. Maguire and her students have used these methods to examine wild and captive management strategies for species such as grizzly bears, black-footed ferrets,

Sumatran and Javan rhinos, tigers, and red-cockaded woodpeckers.

Another area of her current research is the application of forest dynamics models to predict the impact of air pollutants on tree growth and mortality, and their eventual impact on forest composition and productivity.

Beyond these specific research projects, Dr. Maguire is interested in (1) the application of population dynamics, population genetics and ecological theory to the conservation of animal and plant populations; (2) the processes of competition and succession in managed and unmanaged forests; and (3) the use of quantitative methods, including statistics, decision analysis, and mathematical modeling, to integrate scientific information in resource management.



**Ram Oren, Ph.D., Assistant Professor; B.S., Forest Resource Management, Humboldt State University; M.S., Ph.D., Forest Ecology, Oregon State University.**

Dr. Oren's current research focuses on the interaction between individual trees and the stand in both the below- and above-ground compartments. He is studying the means by which the physical environment and competition affect the availability of light, water, and nutrients and, thus, the production of carbohydrates; and the allocation of carbohydrates under different limiting conditions to the growth of roots, stem, and crown. In the above-ground compartment, he is interested in canopy leaf area development in relation to tree growth and mortality, and wood production. His research seeks to identify key variables that indicate canopy competition and tree

vigor, and can be used to separate normal stand dynamics from environmental stresses (such as drought or acid precipitation) in order to understand and predict effects on growth.

In more general terms, Dr. Oren is interested in using principles of plant physiology to explain whole-plant ecological phenomena, such as tree and stand vigor and their responses to acute perturbations or low-level continuous stresses. He participates in the ecophysiology portion of an acid rain research project at the University of Bayreuth, Federal Republic of Germany, and is responsible for growth and nutrient analyses of Norway spruce at different stages of decline. His future plans include agroforestry research, matching development of the tree canopy to the photosynthesis of crops raised below.



**Peter J. Parks, Ph.D., Assistant Professor; B.S., Forest Management, Oregon State University; M.S., Forest Economics, Ph.D., Resource Economics, University of California, Berkeley.**

Dr. Parks's research interests are in the application of microeconomic theory and econometrics to natural resource problems. Recent projects concern biometric and econometric modeling of forest resource supplies. Much of this has been for the USDA Forest Service to aid in national resource supply assessments and policy formulation. Several of the studies examine allocation of land to resource production in different areas of the United States. Two projects to be completed in the future involve the use of land area models in resource policy analysis.

The first is a study of land allocation in the southeastern United States designed to quantify the effect of uncertainty in predicting returns to alternative uses of land and to compare the influence of uncertainty with that of economic or demographic factors. The second is a study of agricultural and forest land use interactions to estimate the amount of land potentially available for forest uses under different economic conditions and to incorporate these estimates into forest resource supply projections.

Plans include analyses of both American and Canadian land use trends and opportunities. Dr. Parks will administer annual workshops for land area researchers in the United States and Canada. These will foster international and interdisciplinary modeling efforts, and provide opportunities for learning new techniques and applications.





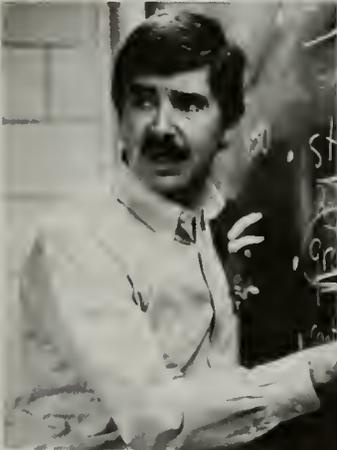
**Kenneth H. Reckhow, Ph.D.**, *Associate Professor*; B.S., Engineering Physics, Cornell University; M.S., Ph.D., Environmental Science and Engineering, Harvard University.

Dr. Reckhow's research activities have focused on the development, evaluation, and application of models for the management of water quality. In particular, he is interested in the effect of uncertainty on model specification, parameter estimation, and model applications. Recent work has expanded this theme to consider the effect of scientific uncertainties on water quality decision making.

Among the problems that Dr. Reckhow's research group has examined are lake eutrophication, toxic substances, and acid rain. Past work on eutrophication has centered on the development and evaluation of empirical models, estimation of prediction uncertainty using first order error analysis and Monte Carlo simulation, and a decision analytic approach to lake management. Work soon to be initiated will be concerned with errors-in-variables and parameter identification in mechanistic models.

A past major research activity was the development of a decision (risk) analytic framework for the management of toxic substances in aquatic systems. Dr. Reckhow and his associates applied the framework to the problem of PCB management in the Lake Michigan watershed. This effort included work on a simulation model, uncertainty analysis and multiattribute utility theory.

Dr. Reckhow and his students have been working on an empirical model for the prediction of the probability of fish absence as a function of acid rain chemistry in United States lakes. This is part of a comprehensive effort to model the emissions, transport, and effects of acid rain for the purpose of policy evaluation at the national level.



**Curtis J. Richardson, Ph.D.**, *Professor*; B.S., Biology, State University of New York at Cortland; Ph.D., Ecology, University of Tennessee.

Dr. Richardson's research interests in applied ecology center on long-term ecosystem response to large scale perturbations such as acid rain, toxic materials, flooding, or nutrient additions. He has specific interests in such internal ecosystem processes as primary productivity and phosphorus nutrient dynamics, and the effects of environmental stress on plant metabolism and growth. Major research just completed focused on wetlands as nutrient sinks. The central hypothesis being tested was that wetlands ecosystems function as nutrient traps and this reduces downstream eutrophication in lakes and streams. Radioactive phosphorus was used to determine the rates of movement, storage, uptake and losses for this limiting nutrient.

His current research activities include: (1) the development of bioassay techniques to predict the potential stress effects of acid rain and ozone on spruce, fir, and loblolly pine physiology; (2) heavy metal, sorption storage and removal from drained pocosin peatlands; (3) wetland development trends in the southeastern United States; (4) aluminum toxicity and plant growth in bauxite residues; and (5) analysis of nutrient and hydrologic flux in coastal ecosystems.



**Daniel D. Richter**, Ph.D., *Associate Professor*; B.A., Philosophy, Lehigh University; Ph.D., Forest Soils, Duke University.

Dr. Richter's research uses principles of soil science to explain forest, land, and water resource problems. His work is directed at quantifying how nutrient and hydrologic cycles control the chemistry of forest soils and drainage waters. Current research has three objectives: to quantify cation exchange reactions among nutrient cations and aluminum in extremely acid forested soils; to determine interactive effects of soil moisture potential on nitrogen mineralization; and to evaluate effects of land-use practices (such as fertilization) on drainage water quality.

These ecological studies include laboratory, field and greenhouse experiments. Laboratory-based mineralization cation exchange studies evaluate effects of atmospheric deposition on soil and drainage water chemistry. Soil moisture's control over nitrogen mineralization is being studied in a moisture-fertility gradient of oak-hickory and pine forests. Greenhouse studies evaluate interactive effects of nitrogen and water on pine seedling growth. Nitrate adsorption to volcanic soils is being studied in heavily fertilized coffee plantations.

Dr. Richter also is interested in studying the long-term effects of land use on soil and water resources. His past work used gauged watersheds to test effects of forest land management on nutrient cycling and water quality. Several current projects are based in Central America.



**William J. Stambaugh**, Ph.D., *Professor*; B.S., Forestry, M.S., Forestry, Pennsylvania State University; Ph.D., Forest Pathology, Yale University.

Dr. Stambaugh's research focuses on (1) the ecology of soil microorganisms with emphasis on mycorrhizae and root diseases of trees, (2) identification and evaluation of biocontrol systems in forest disease management, and (3) epidemiological analysis of forest pest management systems.

Soil microbiology is characterized by a rapidly expanding literature base. Dr. Stambaugh's course in microbiology of forest soils, therefore, is research oriented to insure periodic updating of topics that bear on rhizosphere interactions. This has helped generate a number of graduate dissertations dealing with mycorrhizal biology and the infection process of specific root-decaying fungi.

Tree root diseases have also been examined with regards to the biocontrol potential of saprophytic competitors for rootwood substrate and endomycorrhizal protection of nursery-grown hardwoods against root rot. Most recently, he has evaluated the above-ground system of hypovirulence in the chestnut blight fungus as a biocontrol mechanism for chestnut sprout survival.

The population dynamics of forest pests, primarily fungi and insects, is recognized as the key to development of an integrated approach to forest pest management. Dr.

Stambaugh's course on this subject helps to identify research needs in this context with the potential for implementing analysis of multi-pest systems on the Duke Forest. The ultimate goal of this work is to attain predictive accuracy in identifying pest hazard situations on an operational planning basis.

## Nonresident Faculty

**William R. Bentley**, Ph.D., *Adjunct Professor*; B.S., Forestry, University of California, Berkeley; M.F., Forest Economics and Management, University of Michigan; Ph.D., Agricultural Economics, University of California, Berkeley.

Dr. Bentley's current research interests are in agroforestry methodology and design, social forestry economics and policy, and timber supply and demand. He is senior program officer with Winrock International Institute for Agricultural Development.

**Stephen G. Boyce**, Ph.D., *Adjunct Professor*; B.S., M.S., Forestry, Ph.D., Plant Ecology, North Carolina State University.

Dr. Boyce's current research interest is the design of models to aid managers in the culture of forests and ecosystems. Chief ecologist, retired, with the USDA Forest Service Southeastern Forest Experiment Station, he has pioneered in the development and application of systems approaches to forest planning, management, and research.

**Norman L. Christensen, Jr.**, Ph.D., *Associate Professor*; B.A., M.A., Biology, California State University, Fresno; Ph.D., Biology, University of California, Santa Barbara.

Dr. Christensen's current research interests are the effects of disturbance on the structure, function, and development of plant populations and communities, in particular, patterns of forest development following cropland abandonment as these are affected by environment, stand history, and patterns of seed rain. His research on the southeastern coastal plain is focused on a comparative study of biogeochemical and community responses to varying fire regimes. Dr. Christensen is a professor in the Duke University botany department.

**William K. Condrell**, J.D., *Adjunct Professor*; B.S., Industrial Economics, Yale University; S.M., Business and Engineering Administration, Massachusetts Institute of Technology; J.D., Harvard University.

Professor Condrell's major research interest centers on factors affecting forest investment, including the income, estate and gift, and property taxation of timber. He has specialized in work with tax systems which maximize timber growth, investment, and effective forest utilization from the viewpoint of both the national interest and timber ownerships of all sizes. At present, he is a partner in Steptoe and Johnson, attorneys, in Washington, D.C.

**Michael P. Dieter**, Ph.D., *Adjunct Professor*; B.S., University of Notre Dame; M.A., Ph.D., Zoology, University of Missouri.

Dr. Dieter is a physiologist with the National Toxicology Program of the National Institute of Environmental Health Sciences. His research interests lie in the area of environmental toxicology of metals, mammalian toxicology and carcinogenesis, and cellular biochemistry and physiology.

**Milton S. Heath, Jr.**, J.D., *Adjunct Professor*; A.B., Harvard University; LL.B., J.D., Columbia University.

Dr. Heath specializes in environmental and natural resource law and administration, and the legislative and other governmental aspects of resource development. He is a member of the Institute of Government faculty at the University of North Carolina at Chapel Hill.

**William F. Hyde**, Ph.D., *Adjunct Professor*; A.B., International Relations, American University; M.A., Economics, M.S., Natural Resources, Ph.D., Resource Economics, University of Michigan.

Dr. Hyde's research interests are in applied economics and policy analysis. His work is empirical and quantitative. His research has focused on public land management, including timber supply and wilderness protection; and the net benefits and distributive effects of various public regulations impacting private forest management. He is branch chief of the USDA Economic Research Service in Washington, D.C.

**William R. Sizemore**, Ph.D., *Adjunct Professor*; B.S., Forestry, Louisiana State University; M.F., Duke University; Ph.D., Forestry, University of Georgia.

Dr. Sizemore is a principal in Sizemore and Sizemore, Inc., a consulting firm in Tallahassee, Alabama, offering forest appraisal, analysis, and management services. His current research interests concern the impact of all types of taxes on forest landowners, industrial and nonindustrial. In the field of federal taxation, the combined effects of income and estate taxation are of special interest. He also has helped develop management information systems for forest operations.

**Harold Karl Steen**, Ph.D., *Adjunct Professor*; B.S., Forestry, M.F., Ph.D., History of Conservation, University of Washington.

Dr. Steen's current research interests are the political and economic development of modern forestry concepts and policies, and the history of conservation and land use as related to current forest land issues. He is director of the Forest History Society at Duke University.

**P. Aarne Vesilind**, Ph.D., *Professor*; B.S., M.S., Civil Engineering, Lehigh University; M.S., Sanitary Engineering, Ph.D., Engineering, University of North Carolina at Chapel Hill.

A professor in Duke University's School of Engineering, Dr. Vesilind is interested in research concerning wastewater and sludge management and disposal, and the development of solutions to solid waste and resource recovery problems.

**David N. Wear**, Ph.D., *Adjunct Assistant Professor*; B.A., Botany, University of Montana; M.F., Resource Systems Science, Duke University; Ph.D., Forest Economics, University of Montana.

Dr. Wear's current research is in the areas of aggregate timber demand, timber investment opportunities in the Southeast, the structure of timber markets, and natural resource policy analysis. He is a research forester with the USDA Forest Service, Southeastern Forest Experiment Station, Research Triangle Park, N.C.

## Visiting Faculty

**Mark R. Walbridge**, Ph.D., *Visiting Assistant Professor*; A.B., Biology, M.S., Biology, West Virginia University; Ph.D., Botany, University of North Carolina at Chapel Hill.

Dr. Walbridge's research interests involve the factors that control nutrient (primarily phosphorus) availability in forest and wetland ecosystems. His current studies use radioactively labeled phosphorus in both laboratory and field experiments to examine mechanisms and rates of phosphorus cycling in forest soils.

## Visiting Instructors

Joseph K. Berry, Ph.D., Colorado State University; *Spatial Information Analysis, Inc.*

Steven C. Chapra, Ph.D., University of Michigan; *University of Colorado*

Gordon Davidson, M.E.M., Duke University; *United States Environmental Protection Agency*

Mahlon Easterling, M.S., Columbia University; *Engineering Consultant, Durham, North Carolina*  
Ralph C. Heath, B.S., University of North Carolina; *Hydrogeology Consultant, Raleigh, North Carolina*  
Theodore Howard, Ph.D., Oregon State University; *Department of Forest Resources, University of New Hampshire*  
George H. Mason, M.F., Duke University; *The Travelers Insurance Companies*  
J. Michael Vasievich, Ph.D., Duke University; *USDA Forest Service*

## **Faculty Emeriti**

Roger F. Anderson, Ph.D., *Professor Emeritus*  
Leon Edward Chaiken, M.F., *Professor Emeritus*  
Benjamin A. Jayne, *Professor Emeritus*  
Paul Jackson Kramer, Ph.D., *James B. Duke Professor Emeritus*  
James Granville Osborne, B.S., *Professor Emeritus*  
James G. Yoho, Ph.D., *Professor Emeritus*

*Degrees*



## Degrees

Duke University offers professional and research degree programs in forestry and environmental studies. Study can be pursued for a Master of Forestry (M.F.) or Master of Environmental Management (M.E.M.) degree in the School of Forestry and Environmental Studies, or for a Master of Science, Master of Arts, or Ph.D. degree in the Department of Forestry and Environmental Studies of the Graduate School.

The degrees offered through the School of Forestry and Environmental Studies (M.F. and M.E.M.) are professional degrees. They are intended mainly to provide students with the education and experience for careers in resource management.

The Master of Forestry degree concentrates on forest and associated resources, including woodlands, water, wildlife, and recreation, and their management from an ecological and economic point of view. The graduate with an M.F. degree is qualified for employment as a professional forester in an administrative, staff, or field position with federal or state agencies, forest industries, and other organizations concerned with forest and land management. The M.E.M. considers natural resources in a broader context. The basic objective of this degree is to develop expertise in planning and administering the management of the natural environment for maximum human benefits with minimum deterioration of ecosystem stability.

The Forest Resource Management program is offered under the M.F. degree. The remaining three programs of study—Resource Ecology, Water and Air Resources, and Resource Economics and Policy—are offered under the M.E.M. degree. In addition, students have the option of designing an individually structured program of study under either degree, with the approval of the faculty council.

Students planning careers primarily in teaching and research are urged to follow a course of study in the Graduate School. The Graduate School degrees (M.S., A.M., Ph.D.) are appropriate for the student who wishes to concentrate on a particular area of research in resource science, systems science, or policy.

## Requirements for the Professional Degrees

A total of 48 units is required for either the Master of Forestry (M.F.) or the Master of Environmental Management (M.E.M.) degree. Although a student may fulfill part of the degree requirements through an internship or independent study off campus, he or she must complete at least 24 units and two semesters in residence.

Students' programs consist of a combination of regular courses, independent projects, and seminars. A master's project of 4 to 6 units is required of all students. Course work in other departments of the University and at nearby institutions is available to strengthen students' education in special areas.

A full semester load is 12 units, which should ordinarily consist of a combination of regular courses, independent projects, and the master's project. Not more than four regular courses should be taken in a semester. Permission of the dean is required to take more than 15 or fewer than 9 units in a semester.

As students progress in their programs, they are expected to devote an increasing amount of time to the master's project and to register for more independent project units in a semester. Thus, the student should plan to take fewer units of regular courses during the latter semesters of study.

## REDUCTION IN DEGREE REQUIREMENTS

Students who have an undergraduate degree in forestry or environmental studies may earn either a Master of Forestry or Master of Environmental Management degree with only 30 units of credit. To be admitted to the one-year degree option, the student must have received either a Bachelor of Science in Forestry degree from an accredited forestry school (for M.F. candidates) or an environmental studies degree from an approved curriculum in environmental science or environmental engineering, as judged by the faculty of the student's proposed program of study for the M.E.M. degree. In evaluating the student's credentials for admission with a reduction in credit requirements, special consideration will be given to professional experience. The student must spend a minimum of two semesters in residence. However, students who qualify for admission through the Senior Professional Program, described in a separate chapter in this bulletin, may reduce the residence requirement.

## CONCURRENT DEGREES

Students desiring to earn both an M.F. and an M.E.M. degree can do so by planning their courses appropriately. The requirements for earning both degrees are as follows:

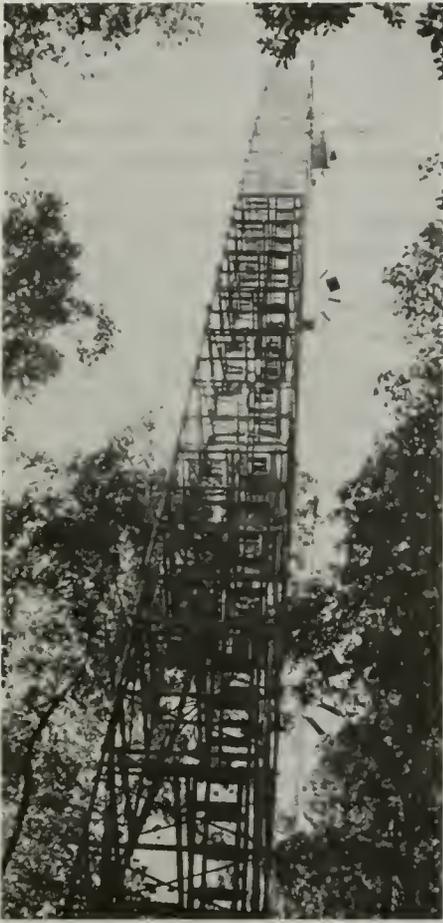
1. The student must qualify for either an M.F. or M.E.M. degree by earning 48 units of credit under the requirements set forth above.
2. For the second degree, the student must complete an additional 24 units of study composed of courses which would normally be accepted toward the second degree. Two semesters in residence are required.

Determination of eligibility for the degrees will be made on an individual basis and will consider the educational background and objectives of the student.

**Master of Business Administration.** The techniques of management science are applied with increasing frequency in the management of natural resources, and they are also now commonly used in the analysis of environmental problems. To integrate training in these management techniques more effectively into the curriculum, the School of Forestry and Environmental Studies has developed a cooperative arrangement with Duke's Fuqua School of Business. Three years of study are required to earn the combined degrees of Master of Forestry/Master of Business Administration or Master of Environmental Management/Master of Business Administration. Degree requirements in the School of Forestry and Environmental Studies are determined by the faculty council. Normally at least 36 units of credit within the school are required to receive the M.F. or M.E.M. degree. A typical program sequence would involve spending the first year in the School of Forestry and Environmental Studies followed by a year in the Fuqua School of Business and concluding with the final year in either school with elective work in the other.

These concurrent degrees stress concepts, analytical reasoning, and the basic methodologies of management science, while providing the student with a knowledge of





current problems in the natural resource industries. Managerial economics, resource economics, organization theory and management, accounting, information and control, resource management, the legal environment, and public policy aspects of resource industries form a substantial component of each degree.

Because of the academic demands of these degrees, those entering without the necessary analytical skills or life science background may be required to take additional work beyond that specified.

Students who wish to undertake both the Master of Forestry or Master of Environmental Management and Master of Business Administration degrees must apply to and be accepted by each of the respective schools. For information on the Master of Business Administration degree, the prospective student should write to the Fuqua School of Business, Admissions Office, Duke University, Durham, North Carolina 27706.

**Master of Arts in Public Policy Sciences.** As issues concerning natural resources and the environment have become of increasing significance to the nation, there has developed a corresponding need for well-trained policy analysts who can provide timely and appropriate information and analysis to resource policy makers. To meet this need a unique concurrent degree has been developed in cooperation with the Institute of Policy Sciences and Public Affairs. Students pursue a Master of Forestry or Master of Environmental Management degree and a Master of Arts degree in public policy sciences. Doctoral candidates in forestry and environmental studies are also eligible to undertake the Master of Arts in public policy sciences.

The concurrent degree normally takes two and one-half years to complete. The first year is devoted to study in the School of Forestry and Environmental Studies, and the second year is spent in the Institute of Policy Sciences and Public Affairs. The final semester involves work in both areas. Degree requirements in the School of Forestry and Environmental Studies are determined by the faculty council. Normally, at least 36 units of credit within the school are required to receive the M.F. or M.E.M. degree. A summer internship with a resource or environmental agency, or with a related legislative, judicial, or interest group, is required for the policy degree.

This degree provides training in the politics and economics of resource and environmental policy making. Emphasis is placed on understanding the social and political forces involved, developing facility with quantitative and logical methods of forecasting, and evaluating policy consequences. Knowledge of the uses and limitations of policy analysis, and an awareness of the ethical dimensions of policy choice are also stressed.

Students must apply to and be accepted by both the School of Forestry and Environmental Studies and the institute. For detailed information on the policy sciences degree, write to Director of Graduate Studies, Institute of Policy Sciences and Public Affairs, Duke University, Durham, North Carolina 27706.

**Other Concurrent Degrees.** With the special permission of the faculty council and the dean of the School of Forestry and Environmental Studies, students are permitted, on an individual basis, to establish concurrent degree programs with certified graduate degree programs either within or outside of Duke University. In the past, students have designed such programs with law schools, business schools, and graduate engineering programs. As with the other concurrent degrees, the student must be enrolled in the Master of Forestry or Master of Environmental Management degree program for 36 units of credit and in residence for at least one full year.

To gain acceptance of a specially designed concurrent degree, the student must show an official acceptance from another certified graduate degree program. In order to receive the M.F. or M.E.M. degree, the student must have completed 36 units of credit, the master's project, all program area requirements, and at least one full year of study in the other degree program (with an official transcript of work completed). For additional information concerning special concurrent degrees, applicants should consult the Director of Admissions.

# Degrees in the Graduate School

In addition to the professional degrees (M.F. and M.E.M.) described earlier, Duke University offers the Master of Arts (A.M.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.) degrees in appropriate areas of forestry and environmental studies. These degrees are administered by the Graduate School of the University; however, the bulk of the instruction, research, and advising connected with them takes place in the School of Forestry and Environmental Studies. For administrative purposes, qualified faculty members of the School of Forestry and Environmental Studies comprise the faculty of the Department of Forestry and Environmental Studies of the Graduate School.

Degrees in the Graduate School are appropriate for students desiring to concentrate their study and research within a well-defined area of forestry or environmental studies. Students usually pursue fewer and more advanced topics to a greater depth than do students in professional degree programs. Thus, study in the Graduate School is more appropriate for students preparing for careers in teaching or research in specialized areas, while the broader approach characterizing professional education is more appropriate for students preferring careers in resource management.

Graduate School students emphasize research as major parts of their degree programs. An active research program is a vital component of the School of Forestry and Environmental Studies, and most of the research projects in the school utilize graduate students as research assistants.

**Qualification of Students.** Students seeking admission to the Graduate School must have received an A.B. or B.S. degree (or the equivalent in the case of foreign students) from an accredited institution. Usually the student should have majored in the area of intended graduate study or one closely related to it. Some work in science and mathematics is essential; however, the total undergraduate education should be well-rounded. Because research is such an integral part of graduate education and of the school's mission, the student's undergraduate record must evidence the capability and motivation to carry out independent study and research at an advanced level.

**Policy and Procedures.** Policy and procedures for admission, general requirements for degrees, registration, and academic regulations are given in detail in the bulletin of the Graduate School and are not repeated here. In general, procedures, requirements, and regulations are similar in the Graduate School and in the School of Forestry and Environmental Studies. Some differences are noted below.

**Admission.** Applications for admission to A.M., M.S., and Ph.D. degree programs in forestry and environmental studies should be obtained from and returned to the dean of the Graduate School, Duke University, Durham, North Carolina 27706. However, inquiries about programs of study and research should be sent to the director of graduate studies, School of Forestry and Environmental Studies. On request, the director of graduate studies will arrange to have application materials sent to the applicant.

All applicants for degrees in the Graduate School will have their files screened by the faculty of the Department of Forestry and Environmental Studies of the Graduate School. One of the faculty members must accept responsibility for advising the applicant before admission can be offered.

## GENERAL REQUIREMENTS FOR THE MASTER'S DEGREES

**Residence Requirements.** Candidates for A.M. or M.S. degrees must spend, as a minimum, one full academic year (two successive semesters), or its equivalent in summer sessions, in residence at Duke University. Thirty units of graduate credit constitute minimum enrollment for a master's degree. Additional time to complete course and research requirements is frequently necessary.

**Transfer of Graduate Credits.** A maximum of 6 units of credit may be transferred for graduate courses completed at other institutions. Consult the bulletin of the Graduate School for details.

**The Thesis.** A thesis is required of M.S. degree candidates but is optional for A.M. candidates. The thesis must indicate the student's ability to collect, arrange, interpret, and report pertinent material on a research problem. Although a publishable document is not required, the thesis must be written in an acceptable style and should exhibit the student's competence in scholarly procedures.

**The Examining Committee and the Examination.** The faculty member who directs the student's program recommends an examining committee composed of himself and two other members of the graduate faculty, one of whom usually must be from a department other than forestry and environmental studies. The committee conducts an examination based on the student's general program and the thesis.

**Language Requirements.** There is no language requirement for A.M. or M.S. degree candidates in the Department of Forestry and Environmental Studies.

**Major and Related Subjects.** The student must present acceptable grades for a minimum of 24 units in graduate courses. Of these, at least 12 units must be in the Department of Forestry and Environmental Studies. A minimum of 6 units must be in a minor subject or in related fields approved by the department and by the dean of the Graduate School. A maximum of 6 units may be earned by submission of an approved thesis.

## GENERAL REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY DEGREE

The Ph.D. is a research degree. Although course work is a necessary part of the student's program, the mere accumulation of course credits will not be sufficient for receiving the doctorate. The granting of the Ph.D. is based primarily upon the student's knowledge of a specialized field of study and upon the production of an acceptable dissertation embodying the results of original research.

**Requirements.** The formal requirements for the Ph.D. degree are as follows: (1) major and related courses, (2) foreign language, (3) a supervisory committee for program of study, (4) residence, (5) preliminary examination, (6) dissertation, and (7) final examination. In order to be considered for candidacy for the Ph.D. degree, the student must have passing grades in all courses.

**Major and Related Courses.** The student's program of study demands substantial concentration on courses in the department. However, a minimum of 6 units in a related field approved by the department must be included.

**Foreign Language.** Ph.D. candidates in forestry and environmental studies are not ordinarily expected to have a reading knowledge of a foreign language. However, on recommendation of the student's supervisory committee, knowledge of one or more languages may be required.

**Supervisory Committee.** As early in a student's course of study as is practicable, and not later than two months before the preliminary examination, the director of graduate studies will nominate for the approval of the dean a supervising committee consisting of five members, with one member designated as chairman. This committee will include at least three graduate faculty members from the department and at least one from outside the department. This committee, with all members participating, will determine the program of study and administer the preliminary and final examinations. Successful completion of the final examination requires four affirmative votes. The final examination may be administered by four members if the representative of the related field is present.

**Residence.** The minimum registration requirement is 60 units of graduate credit, of which not more than 15 units may be accepted by transfer. The minimum registration per semester is 12 units. The minimum full-time residence requirement is one academic year (two consecutive semesters) at Duke. All Ph.D. candidates must register for a full course load until they have completed the required 60 units of graduate credit. Those entering with undergraduate deficiencies may be required to take undergraduate courses for which they will not receive degree credit. The student's supervisory committee will

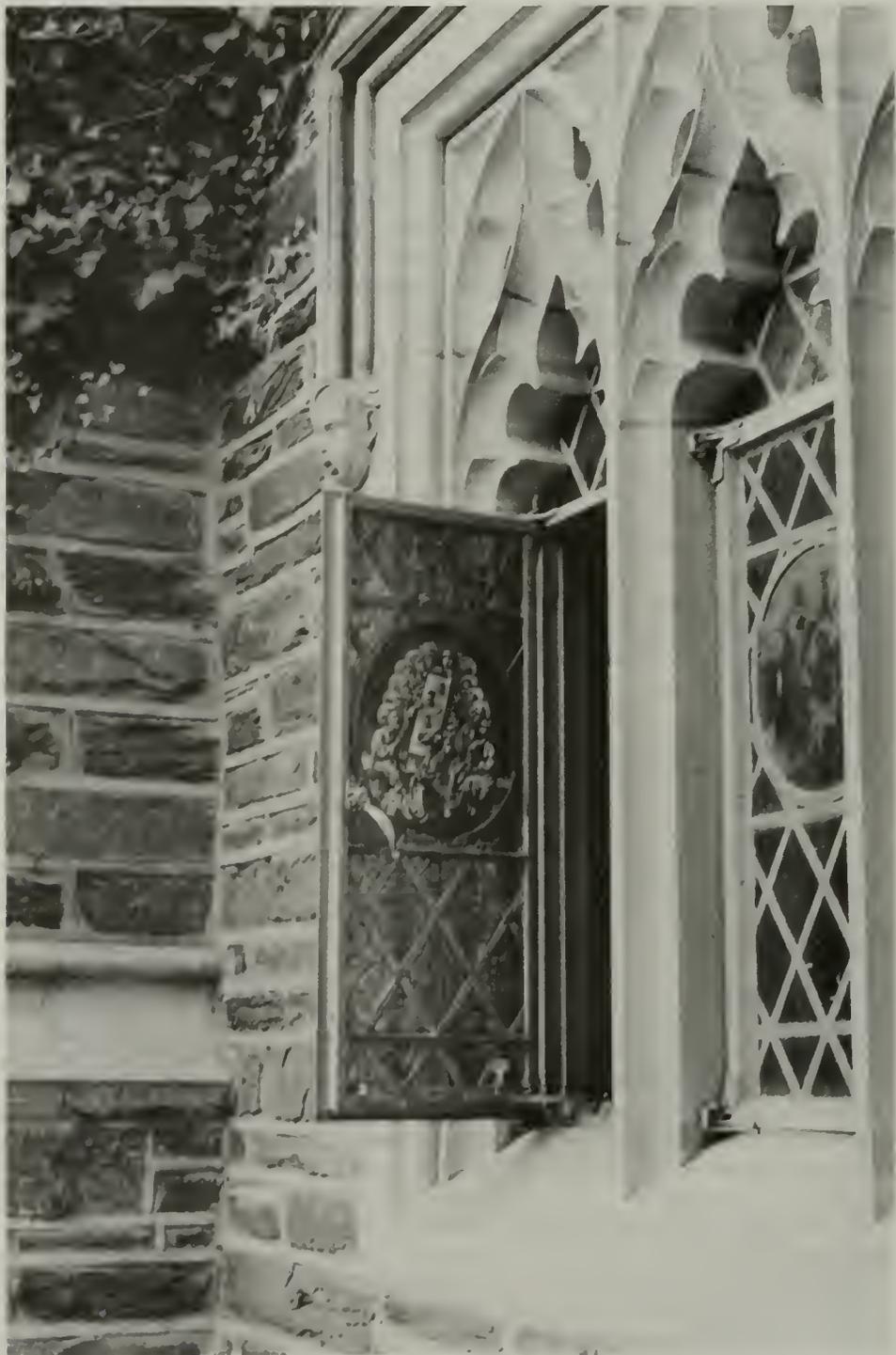
determine what requirements above the minimum, if any, the student must meet. More complete information and requirements for the preliminary examination, the dissertation, and the final examination are outlined in the bulletin of the Graduate School.

## **Nondegree, Special Status**

Persons interested in pursuing graduate studies in natural resources not leading to a professional or a graduate degree may apply for nondegree, special status. Such students may take from 3 to 12 units of course work each semester; they are registered with the University as a student with appropriate privileges and they receive transcripts of work completed for each semester in residence. If the student later applies for admission into a regular degree program, some of the courses may count toward the degree. Students wishing to study for only one or two semesters or to do postdoctoral work should apply for nondegree, special status. Additional requirements are contained in a later section on admissions.

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*Programs of Study and Research*



In the School of Forestry and Environmental Studies, maximum attention is devoted to the individual student. Emphasis is placed on maintaining the highest standards of scholarship and on relevance to contemporary needs in natural resources study and research.

The educational experience at Duke is enriched by a philosophy of interdisciplinary study that takes to full advantage the breadth of professional offerings in other schools on campus. The availability of courses at the nearby campuses of North Carolina State University and the University of North Carolina makes the Duke program uniquely strong in intellectual content. Within easy commuting distances formed by the triangle of universities is found the Research Triangle Park where major public and industry-supported research programs provide excellent opportunity for work-study internships and exposure to current topics in research.

The school emphasizes three broad conceptual areas in its instruction and research: applied resource science, resource economics and policy, and quantitative methods. Regular courses, intensive courses, seminars, and special studies are offered in each of the three areas. Preparation for professional employment requires a higher degree of specialization than is characterized by this framework, however. Hence, four programs of study have been designed by the faculty to assure competence in some aspect of natural resources while offering adequate breadth of educational experience. One of these programs, Forest Resource Management, is offered under the Master of Forestry degree; the remaining three, Resource Ecology, Water and Air Resources, and Resource Economics and Policy, are offered under the Master of Environmental Management degree. Each program can be used as a foundation for obtaining the A.M., M.S., and Ph.D. degrees.

Qualified students who have interests outside of the structured programs are permitted to design individual programs of study. Pursuit of an individual program requires preparation of a comprehensive statement of objectives and specification of each of the program components: major courses, minor courses, seminars, electives, and a master's project. All individual programs of study are subject to approval by the faculty council.

## **Program Requirements**

Each of the school's programs of study and research have similar requirements within the broad categories discussed briefly below. More specific information about requirements for any one of the programs can be obtained from the director of admissions.

**Prerequisites.** Students admitted to the school are expected to have had at least one introductory course in calculus, statistics and economics, and to have a working knowledge of computer programming. They are also expected to have had some previous training in the natural sciences or the social sciences related to their area of interest in natural resources. For students who select either the Resource Ecology or the Forest Resource Management program, this previous training must include an introductory course in ecology.

Students who do not satisfy all of these prerequisites may be admitted to the school but will be expected to make up these deficiencies prior to entrance by means of formal courses, independent study, or other arrangements agreed upon by the applicant and the school. A limited number of prerequisites may be made up during the first year of residence, but undergraduate courses taken to satisfy prerequisites normally will not count toward degree requirements.

**Credit Requirements.** Each program requires the completion of 48 units of credit. These units are distributed among a set of required courses constituting the major, elective courses, a set of courses forming the minor, a master's project, and seminars relevant to the program's objectives.

**Major courses.** Each program requires from three to eight courses (10 to 27 units) in the major area of study. These courses are specified or, in some cases, elective within the limits of the program emphasis.

**Elective Courses.** Elective courses are available to give the student flexibility in developing his or her course of study. These credits are used to add depth to the major area of study or to develop a second area of expertise. Students who select the Resource Economics and Policy program and who have not had previous training in a natural resource area must use at least three of their elective courses to meet this requirement.

**Quantitative and Analytical Minor.** All programs require a minor of at least three courses (8 to 12 units) in quantitative and analytical methods related to natural resource analysis, modeling, and management.

**Master's Project.** A master's project constituting 4 to 6 units of credit is required. These projects take the form of individual or small group research efforts related to some area of natural resource management.

**Seminars.** All students are required to participate in seminars in their program area for 1 to 3 units of credit. During the spring semester of their second year in residence, students present the results of their master's project.

## Forest Resource Management

The Forest Resource Management program integrates the biological and physical components of forest productivity with methods of modern business management. The program builds knowledge in basic forest ecology and integrates this knowledge with foundations in planning and administration for the production of the wide range of forest resources. This distinctive approach is brought about by close coordination of resource inventory course work; resource oriented courses such as soils, silviculture, timber production, forest protection, tree physiology and genetics; management oriented courses such as operations research, modeling, and ecosystem analysis as applied to research and development; and courses in resource economics and policy.

The program emphasizes the use of computer based, quantitative techniques to facilitate decisions on the selection of management options to achieve objectives. Various methods of analysis are applied to all forest resources in order to optimize production within the constraints imposed by biological, physical, and economic conditions.

The central focus of the Forest Resource Management program is problem solving in complex ecologic and management systems. Within the program, students have the flexibility to gain depth in an area of specialization. Consequently, students may acquire



skills that qualify them for a variety of positions in forest products industries, government agencies, nonprofit organizations, and other groups concerned with the management, utilization, and protection of forests. The program can provide an excellent foundation for the Ph.D. and a career in research. Students who complete this program and also complete a Master of Business Administration degree in the Fuqua School of Business have particularly strong credentials for employment in private industry.

Forest Resource Management is offered under the Master of Forestry degree. Students may use electives and additional course work to accommodate a second emphasis in Resource Ecology, Water and Air Resources, or Resource Economics and Policy.

This program is accredited by the Society of American Foresters, which is recognized by the Council on Postsecondary Accreditation and the Department of Education as the accrediting body for forestry in the United States.

## Resource Ecology

The Resource Ecology program is concerned with the application of ecological theory to the manipulation and management of both terrestrial and aquatic ecosystems. An integrated management scheme is advocated; that is, one which takes into account economic constraints, environmental ethics, and political reality.

The framework for the development of management guidelines is provided by these general ecological mandates: the recognition of a hierarchical order of study (organism, population, community, and ecosystem); the prevention of irreversible losses of ecosystem processes; the recognition and understanding of connections among various ecosystems; and the maintenance of ecosystem integrity for future generations.

The applied thrust of the program allows the student to anticipate as well as to answer questions about environmental and ecological management problems. Problem solving is based on the best possible scientific description of ecological processes and relates to appropriate data bases. Applied ecology recognizes the needs of the environmental management user community and provides an organizing framework and an information system to help minimize resource use conflicts.

Mathematical and conceptual models are invaluable in clarifying ecosystem organization. They are essential to describe basic biophysical processes, to test hypotheses, and to predict the response of ecosystems to disturbance. Consequently, a strong background in quantitative methods is required of students in this program, as it is for other programs offered by the school.

The objective of the Resource Ecology program is to train professionals for management or research positions with state or federal natural resource agencies, regional planning bodies, resource development companies, and consulting firms. Graduates of the program have practical experience with the analysis of actual ecological problems such as flooding, disturbance of wetlands, the effects of toxic substances and fertilizers on ecosystems, integrated pest management, and mining reclamation.

Resource Ecology is offered under the Master of Environmental Management degree. Majors in the program can select one of the following areas of concentration: aquatic/wetlands ecology, forest ecology, quantitative ecology, landscape ecology, or ecotoxicology. Students may use electives and additional course work to accommodate a second emphasis in Forest Resource Management, Water and Air Resources, or Resource Economics and Policy.

## Water and Air Resources

The program in Water and Air Resources is concerned with the management of these renewable natural resources and their interaction with land related resources. Particular emphasis is placed on the effects of land resource management on water quality and quantity and on air quality.



Course work and other training in the program cover basic hydrologic and atmospheric processes, methods of quantitative analysis, and methods of management and decision making. The basic processes emphasized are those concerned with watershed hydrology; stream and lake water quality; general meteorology and climatology; and the origins, transport, and removal of atmospheric pollutants. Quantitative analysis techniques include statistical methods, probabilistic and deterministic models, and optimization and simulation methods. These courses are integrated with others in water resource management, air resource management, and economic analysis.

Graduates of the program have the skills to become analysts or consultants for private industry and public agencies concerned with the management and protection of water and air resources. These employers include regional planning agencies, public utilities, fuel and ore extraction corporations, consulting firms, and hydrologic or environmental research centers.

Water and Air Resources is offered under the Master of Environmental Management degree. Majors in the program can select one of two areas of concentration: either water resources or a combination of water and air resources. Students may use electives and additional course work to accommodate a second emphasis in Forest Resource Management, Resource Ecology, or Resource Economics and Policy.

## Resource Economics and Policy

Society long has had laws and institutions aimed at regulating the use of natural resources such as forests, range lands, wildlife, water, and minerals. During the past few decades, new institutions have been developed to deal with problems of water and air pollution, toxic substances, and related areas of environmental degradation. These institutions demand a professional who has the necessary expertise to staff both public and private decision-making bodies.

The Resource Economics and Policy program is designed to train such decision makers. The program emphasizes the basic methods needed by the professional for analyzing existing policy and for testing the possible outcome of new environmental and resource policy being considered by public and private agencies. The program is highly analytical and is oriented toward the analysis of contemporary problems.

Decision making in natural resource and environmental policy requires mastery of three broad areas of knowledge: the basic sciences pertaining to a natural resource or an environmental phenomenon; the relevant disciplines in the social sciences; and the quantitative methods required for using knowledge from the physical, biological, and social sciences to arrive at a decision.

Courses relevant to renewable and nonrenewable natural resources may be part of the student's educational background or may be planned as part of the master's degree. For the natural resource decision maker, the most important social sciences are resource and environmental economics, political science, and legal analysis. Economics includes production economics, the economics of public goods and externalities, public finance, and the intertemporal allocation of natural resources. Political science includes the behavior of administrative agencies, regulatory agencies, and legislative bodies. Legal analysis emphasizes the allocation of resources as reflected in property rights and environmental risks as reflected in torts. Quantitative methods, an essential component of this program, includes statistical inference, methods of optimization, and decision theory.

Students in the program have the opportunity to assist in ongoing research projects in the school's Center for Resource and Environmental Policy Research and the nearby Southeastern Center for Forest Economics Research. Such training provides a comprehensive background for a wide range of resource analysis and management careers.

Resource Economics and Policy is offered under the Master of Environmental Management degree. Students may use electives and additional course work to accommodate a second emphasis in Forest Resource Management, Resource Ecology, or Water and Air Resources.

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*Center for Resource and Environmental  
Policy Research*



## Director

Robert G. Healy, *Adjunct Associate Professor*

## Faculty

Ralph J. Alig, *Adjunct Assistant Professor*  
George F. Dutrow, *Professor*  
Milton S. Heath, *Adjunct Professor*  
William F. Hyde, *Adjunct Professor*  
Peter J. Parks, *Assistant Professor*  
Harold K. Steen, *Adjunct Professor*

**The Center.** The Center for Resource and Environmental Policy Research is committed to objective and timely analyses of critical natural resource and environmental issues, both national and international.

During the past few years, a substantial and comprehensive body of legislation has been enacted to address resource and environmental problems, much of it strongly influenced by information provided by special interest groups. Often, this legislation has been drafted and passed in a quasi-crisis atmosphere with a consequent absence of mature deliberation. The center was developed in response to recognition of the many conflicts developing over competitive use of natural resources and consequent legislative regulation.

Because contemporary resource-environmental problems are deeply embedded in the social, economic, and political fabric of the country, they are in need of careful and deliberate study. It is in the national interest that such issues be examined in a setting conducive to independent thought with appropriate regard for timeliness of results and conclusions. The Center for Resource and Environmental Policy Research at Duke University is designed specifically to provide the proper setting for such an approach.

Among the current research topics are:

- Land Use Planning and Rural Development
- Policy for Resource-based Industry Development
- Educational Research and Policy Issues
- Water Resources Policy
- Resource Economics and Policy
- Forest Planning and Protection Policy
- Environmental Risk Analysis
- International Resource and Environmental Policies



**The Center Organization.** The center is by design and intent a flexible, multidisciplinary unit. Headed by a director and staffed by an interdisciplinary faculty, the center offers opportunities for involvement to executives, administrators, political representatives, mid-career professionals, academicians, and graduate students. A major aim is to bring together special groups of scholars and professionals to focus their attention on contemporary resource and environmental research problems.

The center is viewed as an all-campus unit at Duke University, drawing primary support from the School of Forestry and Environmental Studies while maintaining strong associations with the Schools of Law, Business, and Engineering, and the Institute of Policy Sciences and Public Affairs.

Beyond the Duke campus, the center maintains close ties with officials from government and industry and the faculty and students of other universities, particularly the University of North Carolina and North Carolina State University.

Several members of the center's faculty are allied with the Southeastern Center for Forest Economics Research. This consortium, headquartered at the Research Triangle Park, is sponsored by the United States Forest Service and several regional universities.

**Graduate Study.** The center provides opportunity for graduate study at the master's and doctorate level in two major areas, policy and economics, and provides minor emphasis in these same topics to students from other subject areas. Degrees are offered through the School of Forestry and Environmental Studies; in addition, concurrent degrees may be developed with the Institute of Policy Sciences and Public Affairs and with the Fuqua School of Business. Students interested in the degree program should contact the center director for a current course list and for formal admission.

For the student interested in a graduate research program at the M.S. or Ph.D. level, individually designed programs of study are directed by the center faculty in accordance with Graduate School policy.

The center offers graduate assistantships to qualified students in resource and environmental policy research. Support is available to students pursuing M.S., A.M., or Ph.D. degrees through the Graduate School at Duke University and M.F. or M.E.M. degrees in the School of Forestry and Environmental Studies.

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*Center for Forestry Investment*





## Director

William K. Condrell, *Adjunct Professor*

## Faculty Associates

Ralph J. Alig, *Adjunct Assistant Professor*

George F. Dutrow, *Professor*

William F. Hyde, *Adjunct Professor*

George H. Mason, *Visiting Instructor*

William R. Sizemore, *Adjunct Professor*

Harold K. Steen, *Adjunct Professor*

**Objectives of the Center.** The Center for Forestry Investment is devoted to a broad program of education and research that is concerned with all aspects of private forest investment under a free market system and private ownership of property. While its geographic focus is essentially national, the center has a strong orientation to the main commercial forest regions of North America.

The center provides a focus on a critically important area dealing with future timber availability in the United States. Heretofore, there has been no central place to consider the effects of national policies on forest investment activity. Policies dealing with taxes, appraisal, insurance, and financial and institutional requirements have been developed largely without respect to the central question of how to satisfy both domestic and export markets for forest products.

Forest investments warrant particular attention because they are unique in many respects. They are capital intensive, long term, and offer only modest yields. Given these characteristics and current economic conditions, it is a challenge to facilitate the private investments required to supply the nation with low-cost timber products while leaving a surplus for export to world markets at competitive prices. At the same time, this must be accomplished without detriment to future forest resource productivity and environmental quality.

**Organization and Administration.** The center is a flexible, multidisciplinary unit based in the School of Forestry and Environmental Studies. It maintains close ties to other professional schools and departments within Duke University. It also draws upon the school's Center for Resource and Environmental Policy Research; the Forest Service's Southeastern Center for Forest Economics Research; the forest products industry; trade associations; and the insurance, pension fund, and financial communities for instructional assistance, advice, and consultation.



Activities of the center include conferences, symposia, and workshops dealing with the major substantive areas affecting forestry investment. Faculty in the center teach relevant courses in the school's Forest Resource Management program.

Comprehensive and scholarly research in the broad area of forestry investment is central to the mission of the center. Among the research topics are:

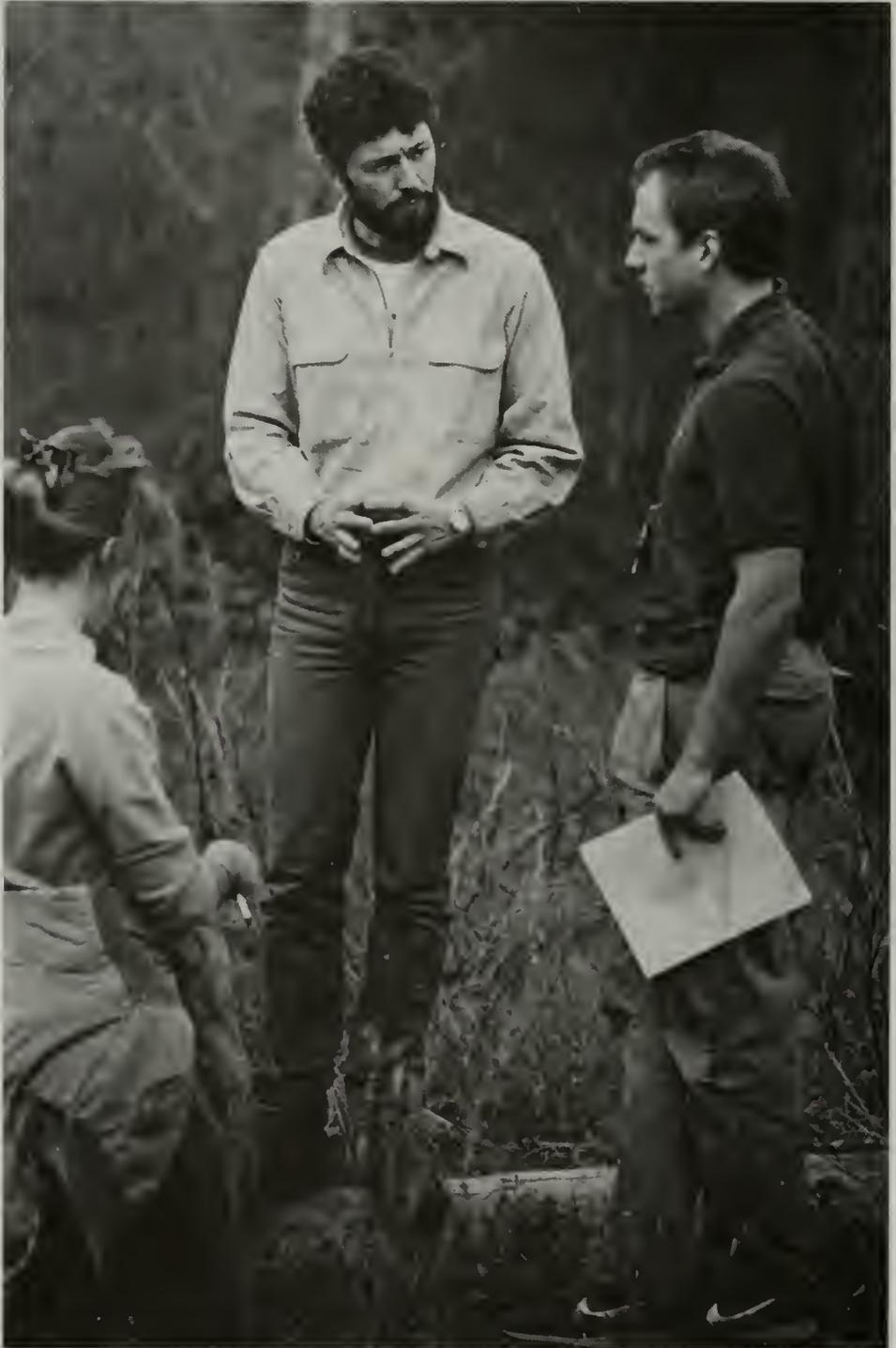
- Investment opportunities, methods, and returns
- Barriers to investment growth in private forestry
- Appraisal, valuation, and accounting systems
- Insurance and risk management
- Issues related to property, income, and estate taxation
- Vehicles for making private investments in forestry

**Opportunities for Graduate Study.** Specifically tailored programs of study and research may be designed to meet the goals of individual students and supervised by faculty members associated with the center. Programs leading to the Master of Forestry or Master of Environmental Management degree are administered by the School of Forestry and Environmental Studies.

For students interested in graduate research at the M.S. or Ph.D. level, individually designed programs of study are directed by faculty associated with the center in accordance with Graduate School policy.

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*Alternative Educational Opportunities*



## Forest History Society

Founded in 1946, the Forest History Society is a nonprofit, nonadvocacy organization committed to balanced and objective investigations of human interaction with the forest environment through time. Although its major focus is North America, the society is involved with a network of forest historians worldwide. In 1984, it became affiliated with Duke University and moved its headquarters to Durham.

The society emphasizes the utility of history to decision making in both the public and private sectors. The society believes that most currently held opinions are strongly influenced by perceptions of the past and that a clear understanding of what really happened, as today's issues evolved, is a vital component in the process of making prudent choices.

Five major emphases enable the society to achieve its goals: *Journal of Forest History*, research and publication, archival collecting, library and reference, and service and professional outreach.

The *Journal of Forest History* is published quarterly. Its refereed articles, book reviews, bibliographic listings, and news enable investigators to keep current with the field. Research and publications, supported largely by grants, focus on topics that are important today and are also significant historically. Among the current topics are the history of forest resource technology, forest economics, sustained-yield forestry, Indian lands forestry, wood as an energy source, forest taxation, labor relations in the forest industries, and industrial forestry research.

The collection of archival materials has been a major effort since the society was founded. Included in the archives are the records of the American Forest Institute, National Forest Products Association, and the Society of American Foresters. The society's library and reference staff provide convenient access to the extensive literature of the field. Students and faculty of the university are welcome to use these valuable resources. The service and outreach emphasis enables society staff to be active participants in their professions. Included are teaching and advising assignments at the School of Forestry and Environmental Studies.

Inquiries regarding the facilities and services offered by the society may be addressed to Harold K. Steen, Executive Director, Forest History Society, 701 Vickers Avenue, Durham, NC 27701.

## Integrated Toxicology Program

The School of Forestry and Environmental Studies houses the ecotoxicology track of Duke University's graduate program in toxicology. The Integrated Toxicology Program

operates under a specific charter to develop holistic and innovative approaches to toxicology training and to provide three training tracks: (1) general toxicology, with broad training in the principles and concepts of toxicology; (2) specialized toxicology, emphasizing such areas as pulmonary toxicology or biochemical toxicology; and (3) ecotoxicology.

The study of ecotoxicology focuses on the principles and concepts of both toxicology and ecology as they relate to the release, transport, exposure, accumulation, and effects of toxics on organisms and ecosystems. The curriculum is designed to teach the student the basic principles of biochemistry, physiology, toxicology, pathology, and ecology along with specific skills in ecosystem analysis, environmental health, epidemiology, statistics, and risk analysis so that he or she can design, execute, and interpret experiments in ecotoxicology.

Completion of this training program at the Ph.D. level provides career opportunities in academia, industry, and research laboratories. Master's candidates are trained for careers in industry, consulting firms, and government agencies concerned with the management of hazardous substances.

An ecotoxicology student is affiliated as a postdoctoral fellow or graduate student (Ph.D. or M.E.M.) in the School of Forestry and Environmental Studies or the Duke Marine Laboratory. All students are required to complete the core sequence of the Integrated Toxicology Program and the ecotoxicology track requirements in addition to specific degree requirements.

Students seeking admission to the program as a Ph.D. candidate make initial application to the Graduate School for admission to the Department of Forestry and Environmental Studies. Candidates for the Master of Environmental Management degree apply directly to the School of Forestry and Environmental Studies. Fellowships are available to outstanding students. Further information on the program can be found in the bulletin of the Integrated Toxicology Program.

## **Integrated Case Studies in Natural Resource Analysis**

The case study approach to graduate education affords the student an opportunity to develop analytical and management skills through a close look at problems in resource management and policy. Case studies are used in class instruction in both traditional and intensive courses in several of the school's study areas.

In addition to utilizing completed case studies as course materials, students also have the opportunity to participate in the research and preparation of new case studies. The process of case preparation brings one in contact with professionals, businessmen, and others and offers a bridge between the academic curriculum and practical experience. This experience and the contacts made in the process of case research are valuable assets in securing employment.

The case studies are termed "integrated" case studies in natural resource analysis because they result from the cooperative efforts of a team of investigators comprising resource-ecologists, -economists, and -planners, as well as political scientists, sociologists, and others. The team approach is used in recognition of the fact that the successful analysis and resolution of the nation's complex resource and environmental problems requires a holistic perspective. Optimally, this results in an exploration of the full ramifications of utilizing natural resource systems.

One objective is to disseminate results of the integrated case studies beyond the walls of the School of Forestry and Environmental Studies. User groups have ranged from federal agencies to local and regional planners. Reflecting these diverse audiences, case study formats have varied. For example, projects have resulted in color and sound 16mm films, simulation games and workshop/conferences, as well as written reports. Typical issues addressed by past case studies include highway siting, emergency hazardous waste disposal, back country management, forest management, and the development of wetlands.

Financial assistance, in the form of graduate fellowships, is available to qualified students interested in case study analysis. Up to 8 units of academic credit may be earned for case study work. Arrangements are made in consultation with the student's faculty adviser and the case studies director.

## **Intensive Courses**

Intended for both practicing professionals and advanced full-time students who are pursuing careers in resource management, policy, and environmental science, the intensive courses offer an alternative to traditional full-semester courses. The sessions are designed to allow regular students to blend theory with practical experience as well as to allow experienced professionals to update theory and methodology. Recognized subject matter specialists provide instructional resources not normally available to the University community. The result is an enriched educational experience through the exchange of ideas and information by participants of diverse backgrounds.

The intensive courses are organized into week-long modules. A course consists of one or two modules, each a discrete unit of study which may be taken alone for credit. In two-part courses, however, the first week may be a prerequisite to the second.

School of Forestry and Environmental Studies students (M.F. and M.E.M. degree candidates) earn 1 unit of credit for each week of an intensive course. Registration is limited; students in their second year of study are given priority. Students may not register for more than two intensive courses in a semester without special permission from their adviser and the intensive course coordinator.

Courses in the intensive course series are listed in a special section in the chapter "Courses of Instruction" in this bulletin. They also are described as part of the Senior Professional Program. A brochure containing complete information on the intensive courses to be offered during a semester may be obtained from the school office.

## **Laird, Norton Distinguished Visitor Series**

Through the generosity of the Laird, Norton Foundation of Seattle, Washington, a Distinguished Visitor Series has been established to bring outstanding guests to the School of Forestry and Environmental Studies each Friday during the spring semester. The major focus of their day on campus is a noontime seminar on current land management concepts, practices, and policy issues. Topics and speakers are selected in accordance with interests of faculty and students to reflect the international natural resource scene, as well as the major timber growing regions of the United States. Speakers are drawn from the senior administrative ranks of public agencies, industries, nonprofit organizations, and the consulting field. Each presentation is followed by an informal luncheon with a smaller group of students and faculty, which permits continued discussion. In addition, students and faculty can arrange to meet privately or in small groups with the guest during the morning. The Distinguished Visitor Series can be taken for 1 unit of seminar credit, if a student desires.

In addition to the Distinguished Visitor Series, the Laird, Norton Foundation grant helps to support other courses and activities which meet the objective of the exchange of ideas between practicing natural resource professionals and university students and faculty. These activities include a forest management seminar series, a forest utilization field trip to industry facilities in the South, and a western field trip.

## **Internships**

An internship with a public agency, forest products industry, environmental consulting firm, or conservation organization is a valuable part of graduate professional

education. The School of Forestry and Environmental Studies Office of Placement and Internship works with natural resource professionals to develop paid intern opportunities for all interested professional and graduate degree candidates.

The Duke School of Forestry and Environmental Studies Fellows Program is a mutually funded internship option developed by the Office of Placement and Internship to facilitate work experience suitable to the student's academic and career goals. A student in the program is hired by an outside organization to work full time during the summer and is paid by that organization. During the following academic year, the student continues to work part time for the same organization on the same project, but is funded by the School of Forestry and Environmental Studies. Students who wish to work for an organization that does not sponsor paid internships may submit proposals through the Office of Placement and Internship to appropriate foundations for funding of up to \$3,000. To date, most of these proposals have been approved.

Most student pursue internships during the summer between their first and second years of study, although internships may be taken at other times and for a longer duration. Academic credit can be earned for an internship; however, in order to receive credit, a plan of study must be prepared in advance and approved by the student's faculty adviser and the dean. The internship must contribute substantially to the educational objectives of the student. With approval, students may use a part or all of the intern experience to fulfill the master's project requirement. Further information may be obtained from the school office.

## International Studies

The School of Forestry and Environmental Studies has a history of contribution to international education and research. Graduates of the school, some of them foreign nationals, hold significant positions in many countries—in multinational corporations, United States government agencies, or resource and conservation organizations that have global responsibilities. Members of the faculty have served overseas in programs of teaching and research, in both the developed and developing parts of the world.

The contemporary need for greater attention to international studies has led the school to develop professional associations and curriculum options for students who wish to combine international interests with study of natural resources and the environment. Duke University is a member of the South-East Consortium for International Development, the South Atlantic States Association for Asian and African Studies, and the Organization for Tropical Studies. On campus, an active Center for International Studies provides a rich array of educational and research opportunities with global emphasis. The potential exists for student participation in international projects through competition for grants and fellowships. In addition, students in the school may elect area studies or languages to further their understanding of global issues and cultures.

The school welcomes foreign students and considers an international student body of value to the learning environment. Through both formal and informal interaction, students from various cultures exchange information and opinions on resource and environmental problems and their alternative solutions. Qualified foreign students in Trinity College and in graduate and professional schools of the University are admitted to courses in the school, subject to the approval of the student's dean and the dean of the School of Forestry and Environmental Studies.

## Cooperative Colleges

The Cooperative College Program is designed to coordinate the education of students in selected undergraduate schools with graduate programs in the broad area of resources and environment offered at Duke. Students are accepted for either of two



degrees, the Master of Forestry (M.F.) or Master of Environmental Management (M.E.M.). Although the program is designed to accommodate a wide range of undergraduate backgrounds, experience of several years indicates that it is best suited to majors in one of the natural or social sciences, pre-engineering, business, natural resources, or environmental science.

The program accepts students after three years of undergraduate study or upon completion of the baccalaureate. With appropriate guidance, highly qualified students can reach a satisfactory level of preparation for graduate work at Duke in three years of coordinated undergraduate study. The baccalaureate degree is awarded by the undergraduate school after the student has earned enough units at Duke to satisfy the requirements of the undergraduate institution. Minimum time required to complete the bachelor's degree is two full-time semesters at Duke. After four semesters at Duke, in which a minimum of 48 units of credit is earned, students may qualify for one of the professional master's degrees.

A student interested in entering the Cooperative College Program should apply to one of the participating schools. Each can provide information on courses of study and bachelor's degree requirements. Students applying for admission to Duke after the third year of study should do so early in the first semester of the third year. Students applying for admission after completion of the baccalaureate should return completed application materials by 15 February. Applicants from the participating schools are considered regular applicants for admission and are judged by the same criteria; therefore, students should submit application forms, transcripts, letters of recommendation, and results of the Graduate Record Examination.

*Senior Professional Program*



Keeping up with new knowledge presents a challenge to all professionals. For the natural resource based industries and agencies, the problems of technical change are compounded by rapidly changing social, political, and economic values. The forest resource, for example, must be managed to produce a reasonable return on investments as well as to provide a reliable source of future raw materials. The forester of today must be well-versed in the techniques of forest management and those of resource analysis to ensure financial solvency in times of increasing economic stress. An understanding of the management sciences and the concepts of operations research is also vital. Few natural resource professionals have this background, however, and few are able to combine formal, continuous educational programs with the day-to-day pressures of a career.

The School of Forestry and Environmental Studies recognizes the need for contemporary educational opportunities for professionals in the field and for efficient use of the individual's time. The Senior Professional Program is intended to provide working professionals with an opportunity to come to Duke University either to update managerial skills or to earn a professional master's degree with a minimum period of residence. The program offers symposia, managerial seminars, intensive courses, and regular University courses for qualified professionals.

Elements of the program may be taken for intellectual gain, for certified continuing education (CEU) or Continuing Forestry Education (CFE) credit, or for graduate credit. Formal degree work may be carried out through a combination of approaches.

The Senior Professional Program allows the participant to tailor an educational experience to individual needs. A brief description of opportunities follows. Inquiries for further information may be addressed to the Office of the Dean.

## **Symposia and Managerial Seminars**

The School of Forestry and Environmental Studies annually sponsors one- or two-day symposia and seminars. Recent sessions have dealt with alternative uses of coastal wetland ecosystems, United States and Canadian interdependence on natural resources, and data and information needs for nonindustrial private forests. Managerial seminars have covered such topics as legal problems in woodlands operations, financial accounting, and principles of taxation applied to the forest industries. Presentations at these meetings are made primarily by outside experts, with Duke faculty serving as moderators and panelists. Although participants in the symposia and seminars do not earn academic credit, they do have an excellent opportunity to meet other professionals, exchange ideas, and increase their knowledge in the area of discussion.

## Intensive Courses

The cornerstone of the Senior Professional Program, the intensive courses cover a wide variety of topics focusing on the management and analysis of forest, land, and water resources. Subject matter is changed periodically in response to the needs of working professionals. Instructors are experts who have an established reputation in their respective fields. As a result, participants are exposed to up-to-date, state of the art information that is available from few other sources.

The intensive courses are structured as week-long modules. The classes often include workshops and independent or group projects in addition to formal lectures in a classroom setting. Ample time is allowed for informal discussion with the instructor and other class members.

All professionals receive a certificate of recognition upon completion of an intensive course. Those who wish may receive certified continuing education credit (CEU) by so specifying upon registration. The courses also qualify for Continuing Forestry Education (CFE) credit administered by the Society of American Foresters. Participants who are admitted to the School of Forestry and Environmental Studies as candidates for the Master of Forestry or Master of Environmental Management degree may take certain intensive courses as part of degree requirements. These students may earn 1 unit of credit for each week of an intensive course.

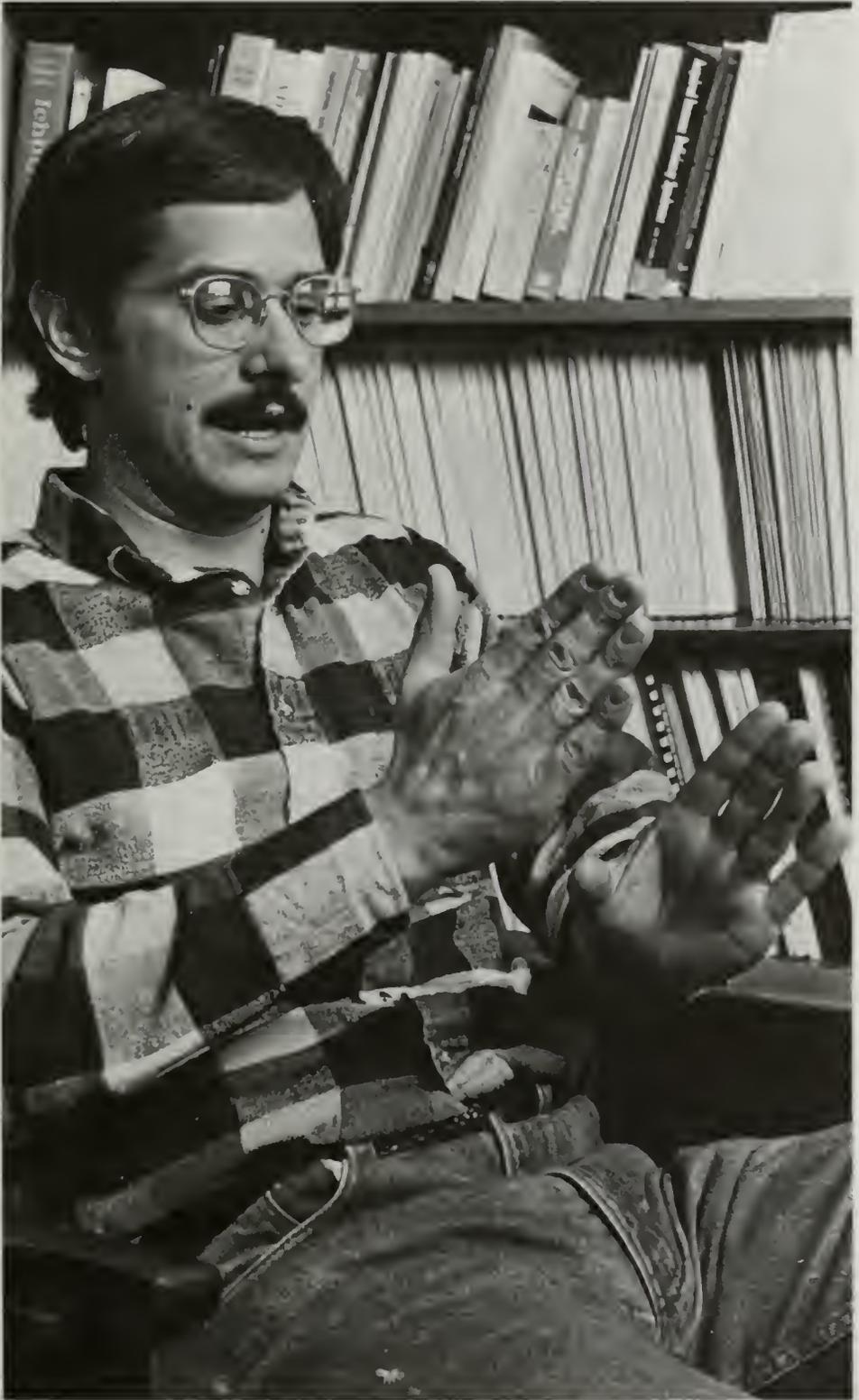
Intensive courses are listed in a special section in the chapter "Courses of Instruction" in this bulletin. A brochure describing the Intensive Course Program, courses offered during a particular semester, registration procedures, and fees is available upon request.

## Master's Degrees for Professionals

Qualified professionals may be admitted to the School of Forestry and Environmental Studies as part-time students. By taking a three-month leave of absence from their jobs, these professional degree candidates spend a full semester at Duke enrolled in regular, graduate level courses. Up to 15 units of academic credit are taken during this time. The remaining 15 or more units of credit needed for a Master of Forestry or Master of Environmental Management degree may be earned in absentia or on campus as career responsibilities permit. Part-time degree candidates have up to five years in which to complete all requirements.

Specific degree requirements for students in the Senior Professional Program, including required courses and the number of academic units necessary to complete the degree, are established by the faculty council upon evaluation of the individual's previous education, working experience, and career goals. A minimum of one semester in residence and 30 units of credit are required. A master's project, which may be completed in absentia, representing 4 to 6 units of credit also is required.

Applicants for degrees through the Senior Professional Program follow the same application procedures as regular students in the school. Applications must be submitted by February for the fall term and by October for the spring term. Normally, degree candidates in the Senior Professional Program take the required semester in residence during the term following admission.



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*Career Planning and Placement*



## Placement

The School of Forestry and Environmental Studies operates its own career planning and placement services for all incoming students, graduate and professional students, and alumni of the school. Assistance is given to students in finding summer employment and internships, permanent employment upon graduation, and mid-career changes of employment.

**Career Planning Seminars.** Individual counseling and group workshops are provided by a professional staff member to assist students in the development of job search strategies and skills, resume preparation, and interviewing techniques. Presentations by alumni of the school enable students to discuss employment options with practicing natural resource professionals.

**Internships.** Although the School of Forestry and Environmental Studies does not require internships, students are strongly encouraged to explore career options and enhance their professional training through paid internships with public or private sector natural resource employers. In addition to traditional summer internships, the Office of Placement and Internship has information on a variety of options that students may consider when arranging practical training. See also the section on internships in the chapter, *Alternative Educational Opportunities*.

**Job Search Assistance.** The Office of Placement and Internship maintains a current listing of employment opportunities from private industry; local, state, and federal governments; universities; and nonprofit organizations. Career planning and placement resource materials are housed in the office. Both current students and graduates are encouraged to use the alumni network established to offer placement assistance.

A resume book is published annually by the school and distributed nationally to potential employers. Students are encouraged to prepare and submit resumes, with the assistance of the staff, for publication. Employer response to the resume book has been favorable, and many students have received initial contacts and invitations to interviews as a result.

**On-campus Interviews.** Each year the School of Forestry and Environmental Studies placement office, in conjunction with the Duke University Office of Placement Services, 214 Flowers Building, invites representatives from a number of firms and government agencies from throughout the country to visit the school to interview students for internships and permanent positions. Second-year degree candidates are offered an opportunity to assemble a complete dossier of academic records and recommendations to supplement applications for positions and to have a permanent file for future reference. All dossiers are kept in the University's Office of Placement Services to insure confidentiality. Students are strongly urged to begin formulating their job-hunting strategies and implementing the job search at least six months prior to graduation.



**Employment Offers.** The success experienced by degree candidates in securing employment serves as a strong testimony to the value of graduate/professional study at Duke. Students are advised to gear their education to a specialized area in order to increase their marketability. Toward this goal, every effort is made to place each student in a paid internship appropriate to his or her field of study and geographic preference. Summer placements with local organizations are often continued as part-time positions during the student's second year of study, adding to the base of professional experience.

Beginning salaries vary, depending upon the educational specialization, capabilities, and prior experience of the candidate as well as the type of organization and geographical region in which he or she is employed. For recent graduating classes, beginning salaries have ranged from \$18,500 to \$45,000 annually with candidates having some prior experience and/or advanced quantitative skills commanding the higher figures.

Graduates of the school have an excellent record of finding challenging, satisfying employment within their areas of interest. Environmental consulting firms and the forest products industry have attracted a large percentage of recent graduates. A somewhat smaller number have accepted employment with federal, state, and local governmental agencies and conservation organizations.

The market for natural resource managers is expanding. In both the private sector, where environmental divisions are being established within traditional corporations, and in the public sector, where policy-making bodies increasingly face environmental concerns, School of Forestry and Environmental Studies graduates are hired in research, planning, administrative, and consulting capacities. To a smaller degree, international organizations utilize natural resource managers; students interested in international



employment usually benefit from experience such as that gained through the Peace Corps. The following is a list of selected organizations with which graduates of the past several years are affiliated.

Alliance Technology Corporation  
American Forestry Association  
American Management Systems, Inc.  
Aquatic Habitat Institute  
Arthur D. Little, Inc.  
Auburn University  
Boise Cascade Corporation  
Booz, Allen and Hamilton, Inc.  
Buckeye Cellulose Corporation  
Camp, Dresser and McKee, Inc.  
CH2M Hill  
Champion International Corporation  
Chesapeake Bay Foundation  
Clemson University  
Colorado State Forest Service  
The Conservation Foundation  
Dartmouth College  
Davey Tree Company  
Duke University, School of Forestry and  
Environmental Studies  
East-West Center  
Ecology and Environment, Inc.  
Envirologic Data  
Environmental Resources Management, Inc.  
Federal Paper Board Company, Inc.  
Georgia-Pacific Corporation  
Hewlett-Packard Company  
ICF, Inc.  
Indiana Department of Natural Resources  
International Paper Company  
JRB Associates  
Kidde Consultants, Inc.  
Kilkelly Environmental Associates  
Louisiana State Extension Service  
Massachusetts Division of Water Supply  
MacMillan Bloedel, Inc.  
Maine Audubon Society  
Malcolm Pirnie, Inc.  
Maryland Environmental Trust  
Mellon Bank  
Michigan State University

Midwest Research Institute  
Missouri Department of Natural Resources  
National Forest Products Association  
National Oceanic and Atmospheric Administration  
National Park Service  
The Nature Conservancy  
New Jersey Department of Environmental Protection  
North Carolina Department of Natural Resources  
and Community Development  
North Carolina State University  
NUS Corporation  
Oak Ridge National Laboratory  
Ohio State University  
Oregon State University  
Pacific Power and Light Company  
Paine-Webber, Inc.  
Peace Corps  
Proctor and Gamble, Inc.  
Radian Corporation  
Research Triangle Institute  
Roy F. Weston, Inc.  
Scott Paper Company  
Sizemore and Sizemore, Inc.  
State University of New York, College of  
Environmental Science and Forestry  
The Travelers Insurance Companies  
Union Camp Corporation  
United States Agency for International Development  
United States Department of Interior, Bureau of Land  
Management  
United States Department of Agriculture, Forest  
Service  
United States Department of Defense  
United States Environmental Protection Agency  
University of Florida  
Virginia Department of Forestry  
WAPORA, Inc.  
Westvaco Corporation  
Weyerhaeuser Company  
World Resources Institute

*Admissions*



The student contemplating study at Duke in natural resources and the environment can enter either the School of Forestry and Environmental Studies or the Graduate School. Admissions procedures differ somewhat depending on the choice of degrees. The professional degrees, consisting of the Master of Forestry (M.F.) and Master of Environmental Management (M.E.M.), are administered by the School of Forestry and Environmental Studies. Students wishing to earn either of these professional degrees should apply directly to the school. Those preferring to earn a Master of Science (M.S.), Master of Arts (A.M.), or Doctor of Philosophy (Ph.D.) degree should apply to the Graduate School. Students contemplating study for the Ph.D., but who are undecided at present, may find it desirable to complete one of the professional master's degrees in the school (M.F. or M.E.M.) and apply to the Graduate School for admission to the Ph.D. program at a later date.

## **Admission to the School of Forestry and Environmental Studies**

The School of Forestry and Environmental Studies welcomes applications from men and women of all backgrounds who seek an intellectually challenging education designed to prepare them for leadership in a wide variety of natural resource and environmental positions. The programs do not require previous study in forestry or environmental studies. However, they are designed primarily for students with a degree in one of the natural or social sciences (including chemistry, biology, physics, economics, earth sciences, environmental sciences, mathematics, and political science) or a preprofessional area such as forestry, engineering, or business.

Admission is open to men and women who hold a bachelor's degree from an accredited college or university or who have completed at least three years of study in an institution participating in the Cooperative College Program. Students who do not have a bachelor's degree and are not enrolled in one of the cooperative colleges may apply to the school for special eligibility. Special eligibility is granted in a limited number of cases to individuals who can meet the school's admission criteria and who have completed the equivalent of 90 semester hours of acceptable undergraduate credit. Those interested in consideration for special eligibility must receive approval from the director of admissions before submitting an application.

Admission as a special or nondegree student may also be granted under appropriate circumstances.

**Prerequisites.** Students admitted to the school are expected to have had at least one introductory course in calculus, statistics and economics, and to have a working knowledge of computer programming. They are also expected to have had some previous training in the natural sciences or the social sciences related to their area of interest in natural

resources. For students who select either the Resource Ecology or the Forest Resource Management program, this previous training must include an introductory course in ecology.

Although students without the level of preparation described above may be accepted for admission, it is expected that deficiencies will be made up prior to entrance by means of formal course work, independent study, or other arrangements agreed upon by the applicant and the school. A limited number of deficiencies may be made up during the first year of residence.

**Admission Criteria.** Admission to the School of Forestry and Environmental Studies is highly selective. Academic performance as an undergraduate, scores on the Graduate Record Examination, and full-time work experience are the primary factors. Recommendations, the statement of educational goals, extracurricular activities, part-time and summer work experience, and other information requested on the application also provide a basis for selection.

The Admissions Committee considers each applicant as an individual. It attempts to evaluate each candidate for his or her academic potential, professional promise, and ability to benefit from and contribute to the goals of the school.

**Application Procedures.** Except in unusual circumstances, students are admitted only at the beginning of the fall term. Applications are accepted at any time; however, applications which include requests for financial aid should be submitted by 15 February preceding the fall in which admission is desired. Because the school processes applications from more qualified students than it can admit, early submission of applications is recommended.

Students who, because of unusual circumstances, wish to begin their studies in January should complete their application no later than 15 October prior to their matriculation. It should be noted that financial awards are allocated to students beginning in the summer or fall, and few awards will be considered for January applicants.

Application for admission to the Master of Forestry and Master of Environmental Management degrees is made through the Office of Admissions of the School of Forestry and Environmental Studies. All correspondence should be addressed as follows: Director of Admissions and Financial Aid, School of Forestry and Environmental Studies, Duke University, Durham, North Carolina 27706.

Each applicant must submit the following before action can be taken:

1. application form;
2. transcripts from each undergraduate and graduate school attended;
3. three letters of recommendation;
4. scores on the aptitude (verbal, quantitative, and analytical) test of the Graduate Record Examination;
5. financial aid form;
6. a nonrefundable application fee of \$45.

**Application Forms.** No applicant will be considered until the completed application form and related documents are received by the director of admissions. The Admissions Committee attaches considerable weight to the statement of educational objectives submitted by the applicant. This statement should reflect well-defined motivation to pursue graduate study. The school is particularly interested in applicants who show leadership potential in the broad field of natural resources and the environment. Applicants are expected to demonstrate the maturity and sense of purpose essential to a demanding educational experience, including a concept of the value of professional education to the applicant's career plans and expectations.

**Transcripts.** Official transcripts of all undergraduate and graduate study should be sent directly to the director of admissions by the registrar of each institution attended.

**Letters of Recommendation.** Each applicant is required to arrange for the submission of three letters of recommendation, preferably on the form supplied with the

application. These recommendations provide the Admissions Committee with evaluations of the applicant's past performance in academic and employment related situations. Although recommendations from any source are acceptable, at least one job related recommendation and one from a college instructor or administrator are desirable.

**Graduate Record Examinations.** All applicants for degree programs must take the aptitude test (verbal, quantitative, and analytical) of the Graduate Record Examination (GRE). The GRE is administered by the Educational Testing Service at locations throughout the world. Applicants are urged to take the exam at the earliest convenient date. Scores on tests taken later than December may not reach the school until after the 15 February deadline for application for financial aid. Scores should be reported directly to the director of admissions. Registration forms may be obtained by writing to GRE, Educational Testing Service, Princeton, New Jersey 08540.

**Financial Aid Form.** All applicants are expected to complete the financial aid form supplied with the admissions packet. Part 1 of this form indicates whether the applicant is requesting financial aid; part 2 indicates the student's financial need if aid is requested. The application for financial aid has no bearing on admission decisions. Academic criteria are the only standards used to determine admission into the professional or graduate degree programs.

**Application Fee.** A nonrefundable application fee of \$45 is required of all applicants. A personal check, money order, or cashier's check made payable to Duke University is acceptable. Applications will not be officially received or processed until the required fee has been paid.

**Interviews.** An interview with a member of the Admissions Committee is not required but may be helpful to the applicant as well as to the school. Consequently, those applicants who can visit the school are encouraged to do so. The interview presents an excellent opportunity for the applicant to ask questions, gain insight into the school, and bring items of concern to the attention of the Admissions Committee. Applicants are encouraged to allow sufficient time to visit classes, meet students and faculty, and tour the University and Duke Forest.

In general, interviews can be scheduled on weekdays throughout the academic year. Appointments should be made at least two weeks in advance. Visits during the summer months are possible but should be scheduled well in advance.

Each year faculty or other representatives of the school travel throughout the country to visit undergraduate schools. Applicants from the cooperative colleges should check with their program adviser for details of these visits. Applicants from other institutions interested in meeting with a representative of the school should write or call the director of admissions. In addition, it is sometimes possible to arrange an interview with an alumnus, particularly where distance precludes travel to Durham. In all of these situations the emphasis is on exchanging information with the applicant.

For further information or to arrange an interview, applicants may write to the director of admissions or call (919) 684-2135.

**Deferred Admission.** Normally, applicants are admitted only to the class for which they have applied. However, a deferral of admission may be granted for the applicant to gain experience or to strengthen academic qualifications for graduate study or for other valid reasons. Except in unusual circumstances, a deferral of admission cannot be granted for more than one year. Deferrals are granted on individual bases. The small size of each class frequently precludes open-ended guarantees of future admission; however, applicants with substantial reasons for deferring the start of graduate work are encouraged to send a request and the required tuition deposit to the director of admissions as soon as possible after receiving an offer of admission. Offers of financial assistance are cancelled upon deferral of admission and students must be reconsidered for financial aid.

**Application Deadlines.** Application forms and all other information required to complete the application and to allow a student to be considered for admission should be

submitted to the Office of Admissions by 15 February for the fall term and by 15 October for the spring term. Although applications submitted after these dates may be considered, early application is recommended because the school receives applications from more qualified students than can be accommodated. All candidates should make arrangements to complete the Graduate Record Examinations well in advance of these deadlines. Applicants seeking financial assistance in the form of scholarships, fellowships, and assistantships for the fall term must have their applications completed no later than 15 February.

**Response to Offer of Admission.** When admission is approved, the applicant will receive an offer of admission and an acceptance form. A nonrefundable tuition deposit of \$450 is required with acceptance of the offer. The admission process is not complete until the acceptance form and the tuition deposit have been returned to the director of admissions.

**Additional Procedures for International Students.** Each year the School of Forestry and Environmental Studies welcomes a number of international students among its professional and graduate candidates. Applicants from other countries must meet the same criteria as applicants from the United States. All academic transcripts and other documents in support of admission must be accompanied by an official translation if the original document is not in English. The nonrefundable application fee of \$45 (U.S.) must accompany the application. Applicants must have a fluent command of oral and written English. No allowance is made for language difficulty in arranging course schedules or in evaluating performance.

If the native language is not English, the applicant must submit scores on the Test of English as a Foreign Language (TOEFL) to be considered for admission. All arrangements for taking the TOEFL must be made directly with the Educational Testing Service, Box 899, Princeton, New Jersey 08540.

All foreign students whose native language is not English will be tested during their first registration period for competence in the use of oral and written English. Until such competence is determined, admission and arrangements for an award involving teaching must remain provisional. Students found to lack necessary competence should be prepared to assume all costs for being tutored in English and should reduce their course or research program by 3 units while being tutored. Students who do not successfully pass the test for competence in the use of oral and written English by the end of their first year of residency will not be permitted to continue their graduate work at Duke University.

The visa-granting authority in the student's country of origin, ordinarily the United States Embassy, requires proof that sufficient funds are available to the student to cover the expenses of all academic years of study before a visa can be granted. Foreign students are not eligible for federal and state loans, although they may qualify for certain educational loans through private United States agencies. Current immigration laws make it extremely difficult for the foreign student to find summer employment and permanent employment in the United States after graduation.

## Admission to the Graduate School

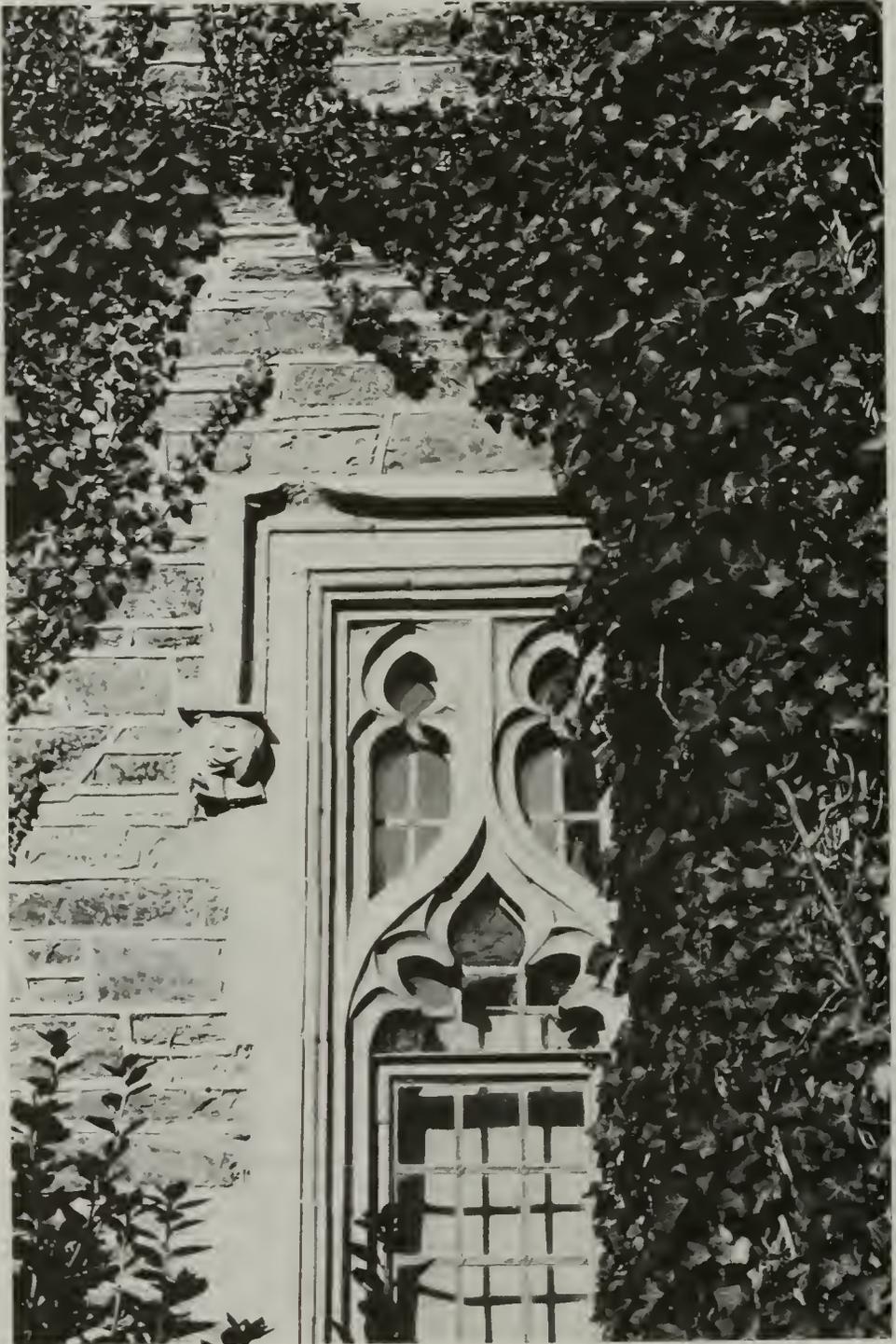
Applications for admission to M.S., A.M., and Ph.D. degree programs in forestry and environmental studies should be obtained from and returned to the Dean of the Graduate School, Duke University, Durham, North Carolina 27706. However, initial inquiries and questions concerning fields of study are best directed to the Director of Graduate Studies, School of Forestry and Environmental Studies. In addition, prospective students are urged to write directly to professors whose research interests match their own to discuss opportunities.

## Admission with Nondegree Status

Persons wishing to enter the School of Forestry and Environmental Studies as a non-degree student must submit a special application form calling for nondegree status along with an application fee of \$20. The applicant must have completed a bachelor's degree from an accredited college or university and must submit an official transcript of all previous course work. The Graduate Record Examination is not required although the GRE score is helpful in the admissions process. The student must have one letter of recommendation; this letter should indicate why the applicant should be allowed to undertake nondegree study at Duke. The application itself requires a brief statement of purpose in which the applicant should state his or her reasons for such study at Duke.

School of Forestry and Environmental Studies—(area code 919) 684-2421  
Dean's Office—684-2135  
Graduate School—684-3913  
Department of Housing Management—684-5813  
Registrar—684-2813

*Financial Information*





## Tuition and Fees\*

The cost of graduate study in the School of Forestry and Environmental Studies at Duke is met primarily from income from endowment, gifts, grants, and research contracts. Substantially less than one-half of the total cost is covered by tuition. In general, the cost of a graduate education of the quality offered by Duke University is modest in comparison with that of other private institutions.

**Estimated Expenses for the Academic Year.** Certain basic expenditures, such as tuition and housing, are to be considered in preparing a student's budget. The following approximate costs, applicable in 1988-89, are indicative of costs that can be expected by M.F. and M.E.M. candidates; A.M., M.S., and Ph.D. students should consult the bulletin of the Graduate School.

Tuition (\$4,240 per semester)	\$8,480
Student health fee (\$119 per semester)	238
Housing	2,875
Food	2,175
Books and supplies	675
Motor vehicle registration	
automobile	50
motorcycle	25
Optional athletic fee	75

In addition to these necessary expenses, the student will incur others which will depend to a large extent upon the tastes and habits of the individual. The average Duke student, however, can plan on a budget in the range of \$13,000 to \$16,500 for the academic year. Travel costs, clothing purchases, and other major expenditures should be included in this estimate. Students with families naturally will have higher expenses.

**Flat-fee Tuition.** The flat-fee tuition allows Master of Forestry and Master of Environmental Management degree candidates to register for 9 or more units of credit for a fixed tuition payment per semester. The normal full-time enrollment is expected to be 12 units per semester, although units may vary from 9 to 15 depending upon the student's academic and assistantship requirements. Permission is required to register for fewer than 9 or more than 15 units in a semester.

In general, students in the two-year M.F. and M.E.M. programs should expect to pay the flat-fee tuition for four semesters. Students in one of the concurrent degree programs will pay the flat fee for three semesters. Students in the one-year professional degree option will pay the flat fee for two semesters.

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\*The figures contained in this section are projections and are subject to change.

If the student is permitted to be enrolled part time (fewer than 9 units), he or she will be charged per unit of credit (\$365 per unit for the 1988-89 academic year).

Students who wish to earn additional credits during the summer will be charged at the part-time rate per units of credit. Students in the one-year degree option who have completed two semesters in residence and all course requirements except the master's project will be charged a minimum registration fee (\$150 for 1988-89) for the summer and each semester until the degree is completed.

All students are expected to be registered in residence, to be approved for a leave of absence, or to pay a minimum registration fee for each semester until their degree is completed.

**Payment of Accounts.** Invoices for tuition, fees, and other charges are sent by the Office of the Bursar and are payable by the invoice due date. No deferred payment plans are available. As a part of the agreement of admission to Duke University, a student is required to pay all invoices as presented. If full payment is not received, a late payment charge as described below will be assessed on the next invoice and certain restrictions as stated below will be applied.

**Late Payment Charge.** If the *total amount due* on the student invoice is not received by the invoice due date, a penalty charge will be accrued from the billing date. The penalty charge will be at a rate of 1.34 percent per month (16 percent per annum) applied to the *past due balance*. The *past due balance* is defined as the previous balance less any payments and credits received during the current month. Student loan payments, if delayed for reasons beyond the individual's control, are treated as a credit on the student's invoice until the loan payment is received.

**Restrictions.** An individual will be in default of this agreement if the *total amount due* is not paid by the due date. An individual who is in default will not be allowed to register for classes, receive a copy of the academic transcript, have academic credits certified, be granted a leave of absence, or receive a diploma at graduation. In addition, an individual in default may be subject to withdrawal from the University.

**Tuition Refund Policy.** In the case of withdrawal from the University, students may elect to have tuition refunded or carried forward as a credit for later study according to the following schedule:

Withdrawal	Refund
Before classes begin	full amount
During first or second week	80 percent
During third, fourth, or fifth week	60 percent
During sixth week	20 percent
After sixth week	None

Tuition charges paid from grants or loans will be restored to those funds on the same pro rata basis and will not be refunded or carried forward. The schedule also applies to housing charges of students moving from University housing to off-campus housing. The student health fee will not be refunded except when withdrawal occurs before classes begin. In the event of death, a full refund of tuition and fees will be granted.

**Late Registration.** Students who register at a date later than that prescribed by the University must pay a fee of \$25 at the bursar's office.

**Audit Fee.** Students registered for a full course load may audit courses without charge. Otherwise, audit fees are \$135 per course during fall and spring and one-half of the course fee during the summer.

**Transcripts.** Transcripts are available on request for a fee of \$2, payable in advance, for a single copy. Additional copies to the same address are fifty cents.

**Housing Charges.** Rent at Town House Apartments is \$2,067 per person in a two-person, two-bedroom unit. Utility charges are not included.

Modular homes rent for \$1,817 per person for a three-person, three-bedroom unit. Utilities are not included.

Central Campus Apartments rents are: \$3,203 for a one-person efficiency unit; \$2,442 per person in a two-person, two-bedroom unit; and \$2,075 per person in a three-person, three-bedroom unit. Rent includes furnishings and utilities, but it does not include telephones.

Housing costs are subject to change prior to any academic year. A \$100 deposit is required with all housing applications. This deposit only ensures a place on the housing waiting list and does not ensure any requested residence. The deposit is refunded if there is no room or if the applicant withdraws the application before an assignment is made.

**Motor Vehicles.** Motor vehicles parked on campus must be registered with the traffic office. Registration must be completed five days after operation on campus begins. The proper registration decal should be displayed on the vehicle. A registration fee of \$50 is charged for each automobile and \$25 for each motorcycle.

The following documents are required to register a vehicle: (1) valid state registration for vehicle registered, (2) valid state operator's license, and (3) satisfactory evidence of automobile liability insurance coverage with limits of at least \$10,000 per person and \$20,000 per accident for personal injuries and \$5,000 for property damage, as required by the North Carolina Motor Vehicle Law.

**Optional Athletic Fee.** For the optional athletic fee, the student obtains admission to all regularly scheduled University athletic contests held on the University grounds during the academic year. This fee is payable at the beginning of the fall semester.

**Student Health Fee.** All students are assessed a fee for the Student Health Service. For the fall and spring, the fee is \$228 (\$119 per semester). For the summer, the fee is \$37 per term.

**Tuition and Fees for the Summer.** For M.F. and M.E.M. students who wish to take additional credits during the summer, registration is charged per unit of credit (\$365 per unit in summer 1989). For students in the one-year degree option who have completed residence and course requirements except for the master's project, the summer registration fee is \$150 for 1989. The summer student health fee and audit fee are listed above. Information on fees, housing, policies and procedures related to the Duke University summer session is available from the summer session office, 121 Allen Building.

## Financial Assistance

Financial assistance in the form of scholarships, fellowships, or student grants is available for qualified students pursuing either the professional degrees (M.F. or M.E.M.) or the graduate degrees (A.M., M.S., or Ph.D.). The school is a participant in the Graduate and Professional Student Financial Aid Service (GAPSFAS). All students must file application with GAPSFAS to be considered for any type of financial aid. Typically, a student may be offered either a scholarship or fellowship (to defray a part of the tuition) and an assistantship. Applicants may obtain a GAPSFAS form from a college or university counseling and placement center or from GAPSFAS, Box 2614, Princeton, New Jersey 08540. Applicants must also complete the financial aid form included in the admissions materials.

Scholarships are granted from University funds which are in limited supply. Consequently, only well-qualified students can expect to receive awards. Scholarships are awarded on the basis of demonstrated outstanding academic ability and a high degree of professional promise. Most scholarship funds are awarded to students entering in the fall semester.

Fellowships are obtained from foundation grants, private industry, or individual donors. Donors of fellowship funds sometimes place restrictions on the use of the funds as well as on the amount of awards. Fellowships are awarded primarily to second- and third-year students on the basis of professional promise. Most fellowship recipients are directly involved in one of the academic programs of the school.



Research assistantships are obtained primarily from grant and contract funds awarded to various faculty in the school. University-funded assistantships are available for students who have sufficient experience to contribute to one or more ongoing research or academic programs.

Pursuant to the Tax Reform Act of 1986, students performing any services (whether degree related or not) required by their scholarship, fellowship or assistantship must have income taxes withheld. However, if the student anticipates no tax liability at the end of the calendar year, he or she can note "exempt" on the state and federal withholding forms and no taxes will be withheld. Income tax information is reported to the student by the University in January.

In all instances, admission to the school is a prerequisite for the award of assistance in any form. Students normally are offered awards for two years of study; however, the school has the right to examine the progress of each student to determine eligibility for continuation of the award in the second year.

It is the policy of the school to provide financial assistance through University sources for only two years. It is expected that professional students will have completed their degrees within this period of time, and graduate students will have obtained research grants to fund their study past the second year.

No student will receive financial aid while on probation. All returning students must complete the GAPSEAS form for each year of residence.

## Eligibility for Financial Assistance

A significant portion of the financial assistance for students in the School of Forestry and Environmental Studies is provided by federal, Title IV funds. To qualify for such funding, usually in the form of assistantships, grants, and loans, students must sign the certificate of compliance regarding Selective Service regulations and must maintain satisfactory progress toward their degree.

The definition of "satisfactory progress" is based upon a combination of length of study in the school, number of units completed, and grades received. The Master of Forestry and Master of Environmental Management degrees must be completed within five years after the first date of matriculation. (Candidates for the A.M., M.S., and Ph.D. degrees should consult the *Bulletin of the Graduate School* for comparable regulations.) During this time, the student must be enrolled for at least 9 units of credit each semester for the first four semesters and at least 3 units of credit per semester thereafter. Regulations concerning grades, stated elsewhere in this bulletin, are applicable.

Failure to maintain satisfactory progress will subject the student to probation or dismissal. A student on probation is ineligible for any form of financial assistance from the school until the terms of probation are removed.

### SCHOLARSHIPS

**University Scholarships.** A limited number of scholarships are awarded each year to selected students who are pursuing either professional or graduate degrees. Awards are made on the basis of academic qualifications and professional or scientific promise. Stipends range from \$1,000 to \$6,000 for the academic year.

### FELLOWSHIPS

**Federal Paper Board Company Fellowship.** A fellowship is awarded each year to a selected student interested in a career in industrial forestry. The stipend ranges up to \$5,000 per year.

**Forestry and Environmental Studies Alumni Association Fellowship.** Fellowships are awarded each year to selected students who are pursuing a Master of Forestry or a Master of Environmental Management degree. The students must have completed one year of graduate study. The amount of the fellowships is set at \$1,000 per year.

**Daniel H. Gelbert and Associates Consulting Forestry Fellowship.** A fellowship is awarded to a selected master's or Ph.D. degree candidate interested in the study of nonindustrial private timber holdings. The stipend is set at \$1,000 per year.

**Leroy B. George Fellowship.** A fellowship is awarded to a selected student from the Haywood or Buncombe counties or the Hendersonville, North Carolina, school systems. Second preference is given to a student from the southern Appalachian region. If a qualified student cannot be identified within the region the fellowship may be awarded to a student in the school who has a demonstrated interest in resource and environmental education and planning. The amount of the fellowship is set at \$1,000 per year.

**Gilman Paper Company Fellowship.** A fellowship is awarded each year to a selected student interested in a career in industrial forestry. The stipend ranges up to \$3,000 per year.

**Integrated Case Studies Fellowship.** Fellowships are awarded to selected students who present appropriate case study proposals in applied ecology. Stipends range up to \$3,000 per year.

**Andrew W. Mellon Foundation Fellowship.** Fellowships are awarded each year to selected students pursuing master's or Ph.D. degrees. Stipends range from \$1,000 to \$5,000 a year.

**Robert L. Smith Memorial Fellowship.** A fellowship is awarded each year by the North Carolina Forestry Association to a selected student pursuing a Master of Forestry degree. The stipend is set at \$500.

**Raymond E. Sullivan Memorial Fellowship.** Fellowships are awarded each year to selected students pursuing master's or Ph.D. degrees. Stipends range from \$1,000 to \$7,000 per year.

**Frederick K. Weyerhaeuser Forest History Fellowship.** This fellowship is available campus-wide to graduate students who wish to study broadly in the area of forest and conservation history. The annual stipend is \$10,000. Inquiries should be made to the Forest History Society, 701 Vickers Avenue, Durham, NC 27701.

**Union Camp Foundation Fellowship.** Fellowships are awarded each year to selected students who are pursuing a master's degree in the Center for Resource and Environmental Policy Research. Stipends range up to \$5,000 per year.

**Sara and Lewis Zirkle Fellowship.** Fellowships are awarded to selected students pursuing master's or Ph.D. degrees. The stipend is determined by the amount of the endowment income each year.

## ASSISTANTSHIPS

**Assistantships for the Master's Candidate.** Assistantships are awarded to graduate and professional students to assist faculty and staff with teaching, research, professional and other projects during the academic year. It is expected that students will work for 10 hours a week on their assigned project; however, under special circumstances, students may be requested for as much as 20 hours of assistance per week.

The amount of the assistantship is set in accordance with the number of hours worked per week. *Assistantships require a regular schedule for work to be arranged between the student and the faculty or staff member to whom he or she is assigned.*

Additional hours of assistance may limit the number of credit hours for which a student may register. Normally, students who receive assistantships for 10 hours per week are limited to 12 units of credit per semester. Those who give 20 hours of assistance per week are limited to 9 units of credit. Exceptions require the permission of the student's adviser and the dean.

Most assistantships are paid by the school on the monthly payroll. For the 1988-89 academic year, the award for 10 hours of assistance was \$2,000.

Normally, assistantships are available only for the academic year and require full-time enrollment in the school. A few awards are available during the summer, however,

for faculty research, staff, and Duke Forest assistance. Summer stipends are paid on a biweekly or monthly basis.

**Assistantships for the Ph.D. Candidate.** A selected number of Ph.D. candidates each year may be offered a financial aid package consisting of full tuition plus a monthly stipend. The tuition is a scholarship from University funds and is tax exempt. The monthly stipend (\$400 to \$650 per month in 1987-88) requires 720 hours of work for nine months (20 hours per week) during the academic year and is taxable. These graduate assistants may be retained by the faculty through research funding for the remaining three months of the summer.

Typically, the Ph.D. candidate is assigned to a member of the faculty to work on a particular research project under his or her direction and/or to provide teaching assistance. Furthermore, the research undertaken is normally a part of the student's graduate program and serves as a basis for the doctoral dissertation. With few exceptions, assistantships are available only for the first two years of graduate study.

*Graduate assistants are required to maintain a regular schedule of work as determined by the faculty member to whom each is assigned.* Those accepting graduate assistantships will be limited to 9 units of course work per semester. Exceptions require the approval of the major professor and the director of graduate studies.

**Research Assistantships.** Funded from grant and contract research under the direction of various members of the faculty, research assistantships provide support during the latter stages of study of the Ph.D. candidate. Typically, the research assistant completes one or more phases of a research project under the direction of the principal investigator, a member of the faculty. Normally, the research completed forms a substantial component of the requirements of the Ph.D. dissertation. However, in some instances this may not be the case and the students pursue dissertation research in a related area of study.

The level of service required of research assistants depends primarily on the nature of a particular research project and the availability of funds. Normally, research assistants are committed to 720 hours of service during the academic year (20 hours per week). Almost all research assistantships require full-time service during the summer. A regular schedule of research under the direction of the principal investigator must be maintained and the academic load is limited to a maximum of 9 units per semester. The research assistant who is retained for half-time service during the academic year and full-time service during the summer may earn from \$6,000 to \$9,750.

**Work/Study.** Work/study funds are administered for student employment through the dean's office as assistantships. Students in the school are not eligible for work/study jobs administered through the University's placement office and are not awarded work/study funds in financial aid packages. Students who anticipate the need for a work/study position should complete the GAPSFAS form at the time they accept admission. They must also sign a form certifying that they are not in default to any student loan organization. Jobs are granted to those with established need and with the skill or training required by a professor for a particular type of teaching or research or by a staff member for a particular type of work. It is the responsibility of the student to inquire about jobs with individual faculty or staff and with the dean of the school. Work/study funds are taxable.

## Application for Awards for the Entering Student

Application for awards is made concurrently with the application for admission. Applicants should initiate the necessary action early to ensure that the required documents are filed with the school's Office of Admissions and Financial Aid on or before 15 February prior to enrollment. Applicants should:

1. Complete the financial aid form.

2. Complete the Graduate and Professional School Financial Aid Service (GAPSFAS) form, sent on request.
3. Furnish the following documents: (a) official transcripts of all previous college or university credits earned, (b) letters of reference from at least three persons familiar with the applicant's character, scholarship, and professional ability, and (c) scores from the aptitude test of the Graduate Record Examinations. Applicants should plan to take this examination in October at the latest. Documents offered in support of admission, if so designated, may also serve in support of the application for financial award.

**Notification and Acceptance of Awards.** Recipients of awards are notified in late March. Completed applications received after the 15 February deadline will be considered if vacancies occur at a later date.

Scholarships, fellowships, and the various categories of assistantships provide the basis for professional/graduate student support. Once offered by the University or the school, funds are committed to one student and are therefore unavailable to others. As a consequence, it is the policy of the school that all awards offered can be declined prior to 1 April without prejudice. However, offers accepted and left in effect after 1 April are binding for both the student and the school.

## Loans

In terms of a needy student being able to afford the graduate program of his or her choice, federally insured student loans are often necessary and useful. Students should consider the nature of the loan and the positive and negative aspects of future loan payments, as well as investigate all other forms of financial assistance.

The director of admission and financial aid will use the applicant's financial aid form as a preliminary means of determining eligibility for various types of loans. This information is sent to the applicant along with financial award offers in March.

Federal law requires all students to have completed a financial analysis program, such as that provided by the Graduate and Professional Student Financial Aid Service (GAPSFAS), to determine financial ability and independent or dependent status. Information and application material for GAPSFAS can be obtained by writing to the Educational Testing Service, Box 944, Princeton, New Jersey 08540.

No loan application will be processed without the GAPSFAS forms on file with the University.

**Guaranteed Student Loans (GSL).** All states have established guaranteed student loans for their own residents. Requirements vary concerning eligibility, amount that can be borrowed, residency requirements, and institutions at which the loans may be used. Students should inquire through their home state lending agencies for further information and GSL applications.

In all states, the GSL is a student loan for which the government pays the interest until six months following the graduation (or withdrawal) of the student borrower from the undergraduate or graduate institution. The limit for a GSL is \$7,500, with the interest rate set at 8 percent for new borrowers. The interest rate may be 7 to 9 percent if the student has previously borrowed from the same lending agency.

Students should send the completed GSL application to the school for certification of eligibility. In the rare case of a student who has difficulty in meeting state residency requirements because of a recent move, the student should write to the school's financial aid office for alternative lending agencies.

Students who borrow through the GSL program will be given entrance and exit interviews concerning the projected and actual costs of their loans. They will also be provided with information on loan consolidation, should this be desired or needed.

**Perkins (National Direct Student) Loans.** Loans through the Perkins program are administered through the University for students who qualify under the federal guide



lines. The student must qualify as needy by the GAPSFAS form and in need of additional assistance beyond the maximum GSL allocation. The interest rate is 8 percent with payment on interest and principal deferred until six months following graduation.

**Supplementary Loans for Students (SLS).** With SLS, students who have borrowed the maximum amount through a GSL may borrow an additional amount up to \$3,000. Repayment of the principal is deferred but the interest must be paid on a quarterly basis. The amount of interest is based on the federal prime rate with 12 percent as the maximum allowed by law. Determination of need is based on the GAPSFAS form. Dependent students may have their parents or guardians cosign the loan.

**SHARE Loans.** Duke University participates in a private student loan program called SHARE (Supplemental Educational Loans for Families) which enables students to borrow up to \$15,000 per year to meet educational expenses. Repayment of the principal is deferred but the student must be able to pay the interest, which is based on the prime rate.

Unlike the federally subsidized loans, SHARE loans are available to students who do not qualify under federal guidelines, such as dependent students whose family income is greater than the federal limit, or independent students whose personal income for the previous year was too high to qualify for a federal loan. SHARE borrowers must have a cosigner (normally a parent or guardian) or be able to qualify as an independent borrower with an established credit rating. However, under GradSHARE a graduate or professional student may be able to borrow up to \$7,500 per year without a cosigner.

SHARE loans may also be available to non-U.S. citizens if they can supply the necessary credit references or have the loan cosigned by a United States citizen.

Interested students should write directly to the school for further information.

**Federal Grant Programs.** Students with only three years of study at one of the institutions in the Cooperative College Program may be eligible for undergraduate state and federal grant programs. Such students should consult their undergraduate financial aid officers, state loan agencies, or federal granting agencies for applications, requirements, and restrictions.

**Short-Term Loans.** Short-term loans and emergency funds are available through the E. S. Harrar Fund at a 12 percent interest rate. Application for a loan is made at the school's Office of Admissions and Financial Aid, 203 Biological Sciences. The funds are disbursed by the school's accounting office, 213A Biological Sciences, which also arranges terms for repayment.

*Student Life*



## Off-Campus Housing

Most of the students at the school join the annual scramble to find a place to live off campus. A few live in on-campus apartment complexes owned by the University and in the graduate residence halls.

The University is very much a part of the urban environment that is Durham, but the campus is not an urban one. It is not traversed by streets with housing and businesses. Consequently the perimeter of the West Campus is densely developed with apartment complexes, and the East Campus is adjacent to a neighborhood of large early twentieth-century homes, some of which have been converted to apartments. Free bus service is available between the two campuses.

In August and early September, the Department of Housing Management operates an off-campus housing service which consists of a staff person who maintains listings of apartment openings, house rentals, and "roommates wanted." The off-campus housing service does not rate the quality of apartments, houses, or landlords, nor arrange viewings. Similarly, the director of admissions in the School of Forestry and Environmental Studies maintains a listing of houses and apartments popular with students in the school as well as a list of entering students who are interested in finding roommates. These lists are mailed to students during late summer.

## University Housing

**Town House Apartments.** Town House Apartments is a thirty-two-unit complex of one- and two-bedroom apartments which houses single graduate and professional students. The complex is situated between the East and West campuses. Some of the apartments are furnished for occupancy by two single students and the remainder for three single students with two students sharing the large bedroom. Town House Apartments have one and a half baths, a living room, and kitchen with dining area. Students must arrange for and pay for electricity, gas, and telephone. The complex is air conditioned and has a swimming pool, and is easily accessible to the campus bus line. These apartments are available for continuous occupancy, summer months included, if desired.

**Central Campus Apartments.** In 1974 the University opened a 500-unit complex, the Central Campus Apartments. Units are available for single and married students. For single students, fully furnished one-, two-, and three-bedroom units are available. Apartments for married students include a few furnished efficiencies and one-, two- and three-bedroom unfurnished units or units in which the living room and first bedroom are furnished. Married graduate students are given priority in these apartments. Because of this and an expected turnover of about 25 percent annually, not all applicants may be accommodated at the time they desire. These units are available for continuous occupancy, summer months included, if desired.

**Modular Homes.** The University owns six modular homes which are located between East and West campuses. They are reserved for single students. These three-bedroom homes are equipped for three-person occupancy and have proved to be popular. They are usually reserved by students who have occupied other University accommodations during the previous academic year. Students arrange for and pay for electricity and phone.

**Application and Residential Deposit.** Application forms, housing information, and regulations governing the occupancy of rooms and apartments will be mailed when the Graduate School or School of Forestry and Environmental Studies has notified the Department of Housing Management of official acceptance of the student.

A residential deposit of \$100 must accompany the application form but does not guarantee a space. This deposit is held throughout the term of the original occupancy and any subsequent renewal. In addition to the \$100 residential deposit, a student currently residing in University housing and desiring to reserve accommodations for the next academic year or a shorter period must make a \$100 prepayment of housing fees to the Office of the Bursar. The bursar's receipt must be presented to the Department of Housing Management at the time the application is made. This prepayment is refundable if a student withdraws from the University; has an approved leave of absence prior to 15 August and notifies the Department of Housing Management at that time; or cancels the application on or before 15 July.

Housing fees for single students are payable for an entire semester unless special arrangements to pay on a different basis are made with the University bursar. Married students may make monthly payments as required by the terms of the lease. Housing costs are listed in the Financial Information section.

Additional payments above the rates for the academic year are required for students who must arrive earlier than the dates established for occupancy or remain later than the dates established for vacating University housing.

Roommate matching is done by the Department of Housing Management on the basis of several questions on the application form. Appeals for changing roommates are accommodated at the conclusion of a semester.

## Services for Students

**Medical Care.** The main components of the student health service include the University Health Services Clinic, located in the Pickens Building on West Campus, and the University Infirmary on the East Campus. Emergency transportation, if required, can be obtained from the Duke campus police. The facilities of the University Health Services Clinic are available during both regular and summer sessions to all full-time students. The facilities of the University Infirmary are available only from the opening of the University in the fall until graduation day in the spring to all currently enrolled full-time students.

To secure the benefits of the student health service, a graduate student, during the term or semester in which the illness occurs, must (1) in the summer session term be registered for at least 1 unit of research or 3 units of course work; (2) be registered for at least 9 units per semester. The costs of student health benefits have been borne by tuition in the past, but are now separate and can be identified as a medical expense for tax purposes. The student health fee is nonrefundable after the first day of classes. Students are not covered during vacations, and their dependents and members of their family are not covered at any time.

The resources of the Medical Center are available to all students and their spouses and children. Charges for all services received from the Medical Center are the responsibility of the student.

The University has an Accident and Sickness Insurance Plan available for full-time students. Although participation in this plan is voluntary, the University expects all graduate students to be financially responsible for medical expenses above those covered by

the student health service. Students who have medical insurance or wish to accept the financial responsibility for any medical expense may elect not to join the Accident and Sickness Insurance Plan by signing a statement to this effect. Each full-time student in residence must purchase this student health insurance or indicate the alternative arrangement.

The Student Accident and Sickness Insurance Plan provides protection twenty-four hours a day during the twelve-month term of the policy. Students are covered on and off the campus, at home, while traveling, and during interim vacation periods. For additional fees a student may obtain coverage for a spouse or spouse and children. Term of the policy is from opening day in the fall.

Coverage and services are subject to change as deemed necessary by the University.

**Counseling and Psychological Services.** CAPS provides a comprehensive range of counseling and psychological services to assist and promote the personal growth and development of Duke students. The professional staff is composed of clinical social workers, psychologists, and psychiatrists experienced in working with young adults. Among services provided are personal, social, academic, and career counseling. A number of short-term seminars or groups focusing on skills development and special interests such as coping with stress and tension, fostering assertiveness, enriching couples' communication, and dealing with separation and divorce are also offered. A policy of strict confidentiality is maintained concerning each student's contact with the CAPS staff. Individual evaluation and brief counseling/therapy as well as career and skills development seminars are covered by student health fees. There are no additional charges to the student for these services.

Appointments may be made by calling 684-5100 or visiting CAPS, 214 Old Chemistry Building.

**Office of Placement Services.** The Office of Placement Services, 214 Flowers, acts as a liaison between the University and potential employers. Students who wish to register with the office are offered an opportunity to assemble a dossier of academic records and recommendations in preparation for interviews and to have a permanent file for future reference. Interviews with representatives from industry and government are scheduled throughout the year for those students who have registered with the placement office. All services are offered without charge to students and alumni. In addition, the school maintains its own Office of Placement and Internship, 207 Biological Sciences. For further information, see the Placement section in this bulletin.

**International Adviser.** The International House handles governmental matters for students from abroad such as statements of attendance for home governments, issuance of United States immigration forms for re-entry into the country after a temporary absence, and required yearly extensions of time. Any new student who is not a citizen of the United States should report with passport to the international adviser soon after arrival. The International House is located at 2022 Campus Drive.

**Other Services.** The Bryan University Center houses an information desk, two drama theaters, a film theater, stores for books and supplies, meeting rooms, lounges, snack bars, and other facilities. A barbershop, hairdresser, post office, and bank are also located in the center and in the nearby West Campus Union.

## Student Organizations and Activities

**Sports.** Students are welcome to use such recreational facilities as the swimming pools, tennis courts, golf course, track, jogging course, handball and squash courts, gymnasium, weight room, and playing fields. Intramural programs provide an opportunity to participate in informal and competitive physical activity. A variety of clubs for gymnastics, scuba diving, sailing, cycling, badminton, karate, rugby, soccer, and crew are also active.



**FOREM.** The FOREM Club is the student organization for coordination of the school's social functions and intramural team participation. Annual functions of the club include a Christmas party, Christmas tree sale, Field Day, and year-end banquet.

**Student Advisory Committee.** The Student Advisory Committee, an elected student group, meets regularly with the dean and faculty representatives to offer advice on courses and curriculum, programs, and long-range goals of the school.

**Professional and Scientific Societies.** Students are encouraged to participate in one or more professional or learned societies appropriate to their academic interest. Many of these societies are interested in participation by students and offer a lower fee to encourage student membership. A student chapter of the Society of American Foresters is active in the school.

**Religious Services.** Interdenominational services are conducted on Sunday mornings in Duke Chapel. Roman Catholic masses are offered daily on campus. Several Protestant denominations have student centers on campus. The Divinity School conducts other chapel services and religious and social activities. There is also a Hillel group which meets regularly.

**Cultural Activities.** Concerts, recitals, lectures, plays, films, and dance programs are presented frequently on campus. Information on major events is available at Page Box Office or the Bryan Center information desk. The University Museum of Art, which has some excellent permanent collections, is located on East Campus.

*Academic Regulations*





## Planning

The responsibility for the specific content of the academic plan of study rests with the student. A thorough familiarity with and understanding of the regulations contained in this bulletin as well as other sources provided by the school are essential to sound planning.

During the fall term each student is assigned a permanent faculty adviser. The adviser should be consulted in planning a course of study. Other members of the faculty, particularly those concerned with the plan of study, should also be consulted on an informal basis. Reassignment to another adviser can be obtained, but only by written request to the faculty council.

## Registration

Entering students who register for the Master of Forestry or Master of Environmental Management degree will receive instructions by mail from the School of Forestry and Environmental Studies a few weeks before the start of the fall term. Registration should be completed during the orientation week. Students in residence register for succeeding semesters at times scheduled in the University calendar.

Registration is approved by the adviser and processed by the school's director of admissions and by the University bursar. Registration is required in order to take courses for credit or audit. To establish eligibility for University housing, for University loans and some outside loans, for the student health service, and for study and laboratory space, a student must be registered. All tuition and fee payments and any indebtedness must be settled before registration will be completed.

**Late Registration.** All students should register at the times specified by the University. The charge for late registration is \$25.

**Change of Registration.** With approval of the adviser, the student can change registration for a period of ten days following the close of registration. A change of fees requires completion of a new fee sheet which is obtained from the school.

**Refunds.** Tuition refunds are governed by the policy stated in the chapter on Financial Information.

**Graduate School Registration.** Students in A.M., M.S., or Ph.D. degree programs register through the director of graduate studies of the Department of Forestry and Environmental Studies. Registration requirements and procedures are described in the section on graduate degrees of this bulletin and in the bulletin of the Graduate School.

**Reciprocal Agreements.** Students enrolled full-time in the School of Forestry and Environmental Studies or in the Graduate School during the regular academic year may be admitted to a maximum of two courses per semester at the University of North Carolina in Chapel Hill, North Carolina State University in Raleigh, or North Carolina Central University in Durham. Similarly, graduate students in these schools may take up to two courses per semester at Duke. Students may also take summer courses at one of the reciprocating universities; however, they must also be registered for at least 1 unit of summer credit at Duke.

## Immunization Requirement

The North Carolina immunization law requires students entering a college or university in the state to be immunized against the following diseases: measles, rubella, tetanus, diphtheria and, in some cases, polio. Each entering student is required to present proof of these immunizations in accordance with the instructions contained in the Student Health Services form provided with the student's matriculation material. This form should be completed and returned to Student Health Services prior to the student's first day of classes. Duke University cannot permit a student to attend classes unless the required immunizations have been obtained.

## Courses

**Course Descriptions.** All courses to be offered at any time by the school are described in the final section of this bulletin. However, courses are subject to change. A list of courses to be offered during a particular term, as well as schedules of courses offered in other departments at Duke and at neighboring universities, are available from the director of admissions prior to registration for that term.

**Independent Study.** All students are expected to place increasing emphasis on independent study as they near completion of residence. FES 299 lists a number of independent project areas. Several students can work together under the supervision of a faculty member by registering for FES 200.

**Master's Project.** All students must complete a master's project of 4 to 6 credits. The project should be identified during the first term of study and initiated during the second term. No student will be permitted to register for the third term of study until a project proposal has been approved by the student's adviser and has been received by the school's registrar. During the final two terms major emphasis should be placed on the project. In completing the project, the student applies theoretical and analytical training acquired during the two years of study on actual natural resource or environmental problems. If desirable, arrangements can be made by the student or the school for consultation with other organizations concerning the scope and objectives of the project.

Students maintain close contact with their advisers during the development and writing of the master's project. Projects should reach final stages of completion by midterm of the final semester in residence. *One copy of the project, approved by the adviser, must be delivered to the dean's office by 1 November for those graduating in December, by 1 April for those graduating in May, and by 1 August for those graduating in September.* The adviser is responsible for critical assessment and grading.

**Auditing.** Students registered for a full course load may audit courses free of charge. Otherwise, the audit fee is \$135 per course during the fall and spring and one-half of the course fee during the summer. Written permission of the instructor prior to registration for the course is required. Audited courses must be so indicated on the registration card. In classes where enrollment is limited, students enrolled for credit will receive priority. Audited courses are recorded without grade on the student's permanent record card. Regular attendance is expected. Changes from audit to credit are not permitted after the drop/add period.

**Dropping and Adding.** The period for dropping and adding courses is limited to the first ten calendar days of the fall and spring semesters. During the summer, dropping or adding of courses is limited to the first three days of the term. Students are advised to make all class changes on the first day of class if at all possible. *Except under unusual circumstances, and with special permission of the dean, no reduction of tuition and fees is permitted unless classes are dropped on the first day of the drop/add period.*

For the special intensive courses, registration may be changed from one intensive course to another course of equal credit after the close of the drop/add period. However, there may be no change in the number of semester hours or in fees.

**Retaking Courses.** Courses required as a part of the program elected by the student or required by the adviser must be retaken if failed. Courses prerequisite to more advanced courses the student wishes to elect must be retaken if failed. Elective courses may be retaken if the student wishes to do so. See the section on grades, below, for additional information.

## Credit Hours

Candidates for the professional degrees are considered fully registered when they enroll full-time for the number of semesters required in their individual degree programs. The normal registration to reach the required minimum units of credit is 12 units per semester, although a variation from 9 to 15 units is common. Students must have the permission of their adviser and the dean to register for more than 15 units in a semester, and all students who wish to enroll for fewer than 9 units must make a formal request to study part-time.

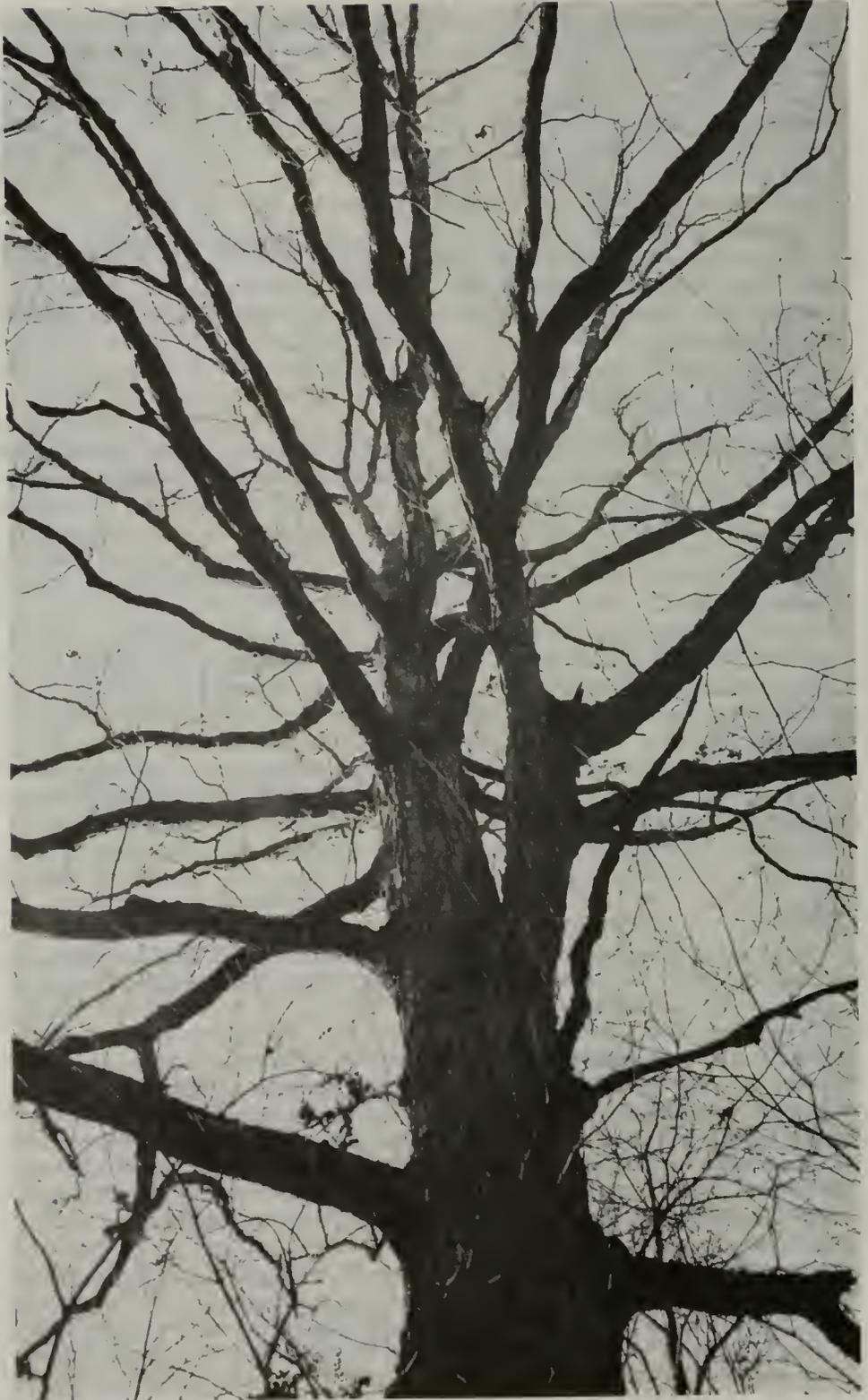
**Summer Registration.** Professional degree candidates are normally not required to register for summer courses. However, a student who wants to supplement his or her graduate work with courses during the summer may do so through the Duke University Summer Session office. The cost is at the part-time rate per unit, and a summer health fee is assessed for students working on campus. Students in the one-year degree option who have completed two semesters of residence and all courses except the master's project register through the school's admissions office and pay a minimal fee. Summer registration does not affect the number of units, semesters in residence, or flat-fee tuition for the regular academic year.

## Grades

The grading system used in the School of Forestry and Environmental Studies and the Graduate School is as follows: *E* (exceptional); *G* (good); *S* (satisfactory); *F* (failing); *I* (incomplete); *Z* (continuing).

The grades of *P* (pass) and *F* (fail) are used in the School of Forestry and Environmental Studies for seminars and modular courses. At the instructor's option, the grades of *P* or *F* or regular letter grades are used for intensive courses, independent projects, and master's projects. The grade of *Z* is assigned for an independent project or a master's project which extends over a period of more than one semester; a final grade is given upon completion of the project. Credit hours for a course completed on a pass/fail basis are creditable toward the master's degree as long as the course is not required in the student's major area of study. Permission for the pass/fail option must be obtained in writing from the instructor upon registration for a course.

**Incomplete Grades.** A grade of *I* indicates that some portion of the student's work is lacking, for an acceptable reason, at the time grades are reported. Requirements of all courses in which a grade of Incomplete is assigned by an instructor must be fulfilled within one calendar year following the date of the assignment of the incomplete grade. If the student fails to complete the requirements within one calendar year, the *I* grade will be changed to a grade of *F*.



In exceptional circumstances, upon recommendation of the professor who has signed the grade of Incomplete, the faculty council may extend the time for completion of the course requirements. If, in the judgment of the professor and the student's adviser, completion of the requirements is not a reasonable alternative for the student, the student may petition the faculty council to allow the grade of *I* to stand permanently on his or her record. Action to allow the *I* to stand permanently must be initiated prior to the time that a grade of *F* is recorded (i.e., within one calendar year). No student will be allowed to graduate with an Incomplete unless permission has been granted for it to stand permanently on the record.

**Failure.** Any course for which a failing grade is received must be retaken or replaced with a substitute course. A substitute course requires the approval of the student's adviser and the faculty council. Both the original failing grade and the grade received for the retaken or substitute course will appear on the student's transcript. Failure of a course also subjects the student to dismissal (see the sections on probation and dismissal and automatic dismissal).

**Probation and Dismissal.** Students are subject to dismissal from the school under any one or a combination of the following factors:

1. no grades higher than *S* during the first semester of study;
2. less than 6 units of *G* and/or *E* grades during the first full year of study;
3. a grade of *F* in any course at any time.

An appeal may be submitted through the adviser to the faculty council to continue study under a probationary status. Probationary terms, set by the adviser, must be specific in the appeal and the appeal must be approved by the faculty council. If probationary terms are met, the student will be returned to regular status. If probationary terms are not met, the student will be dismissed. Students will not be awarded degrees while on probationary status.

**Automatic Dismissal.** A student is automatically dismissed upon failure of more than one course.

## Academic Irregularities

All cases falling outside the regular policies and procedures of the school are referred to the faculty council for decision. The work of the council includes review and decision regarding course requirements for graduation, student probation and withdrawal, student petitions for waivers of degree requirements, and all actions which deviate from established academic regulations.

A student who desires to petition the council should do so in writing to the chairman. A precise statement of the reason for the request is required. The student will be notified in writing of the decision of the council by the chairman.

## Transcripts of Credit

A student who is registered for a course and who successfully completes the requirements as prescribed by the instructor receives credit on the records of the school. Official transcripts of credit are issued only by the University Registrar, 103 Allen Building. Requests for transcripts, sent directly to the registrar, should state clearly the full name under which the work was taken, the dates of attendance, and to whom the transcripts are to be sent. The student must sign the request for release of a transcript. The cost of a single transcript is \$2, payable in advance. Additional copies to the same address are 50 cents each. No transcripts will be issued for students who fail to clear all financial obligations to the University upon graduation.

## Length of Study

For a full-time student entering without an undergraduate degree in forestry or environmental studies, the normal time for completing the master's degree is four semesters. No student, either full-time or part-time, is allowed more than five years to complete the requirements for the master's degree.

## Leave of Absence or Withdrawal

Occasionally, special circumstances require a student to leave the University for one or two semesters at a time. If the reason for the departure is considered an emergency, the student may request a leave of absence for a period not to exceed one year. If the reason is to study elsewhere in a combined degree program, a leave will be granted for the length of study. If the student plans to do field studies or an internship, he or she must maintain University enrollment by paying a registration fee each semester of the academic year until full-time study is resumed.

Under all circumstances, the student must request the leave for a specific length of time prior to departure from the University. Extensions must be requested if they are required. Failure to request a leave or an extension of leave may result in dismissal from the University. A student is eligible to request a leave of absence only after having completed at least one semester of study.

A student who wishes to withdraw must make a written request to do so. For refunds upon withdrawal, see the chapter on financial information.

## Application for the Degree

Even if degree plans are tentative, a candidate for a degree must file an application for the degree no later than the end of the sixth week of the semester in which the degree is to be received. For a degree to be awarded in September, application must be filed no later than the beginning of the second summer session. The application for the degree is valid only for the semester in which it is filed. If the student does not receive the degree as expected, he or she must file a new application.

All candidates are urged to attend the commencement exercises at which their degrees are to be awarded. A student who is unable to attend is required to file a petition with the dean, not later than four weeks prior to commencement, seeking permission to receive the degree in absentia.

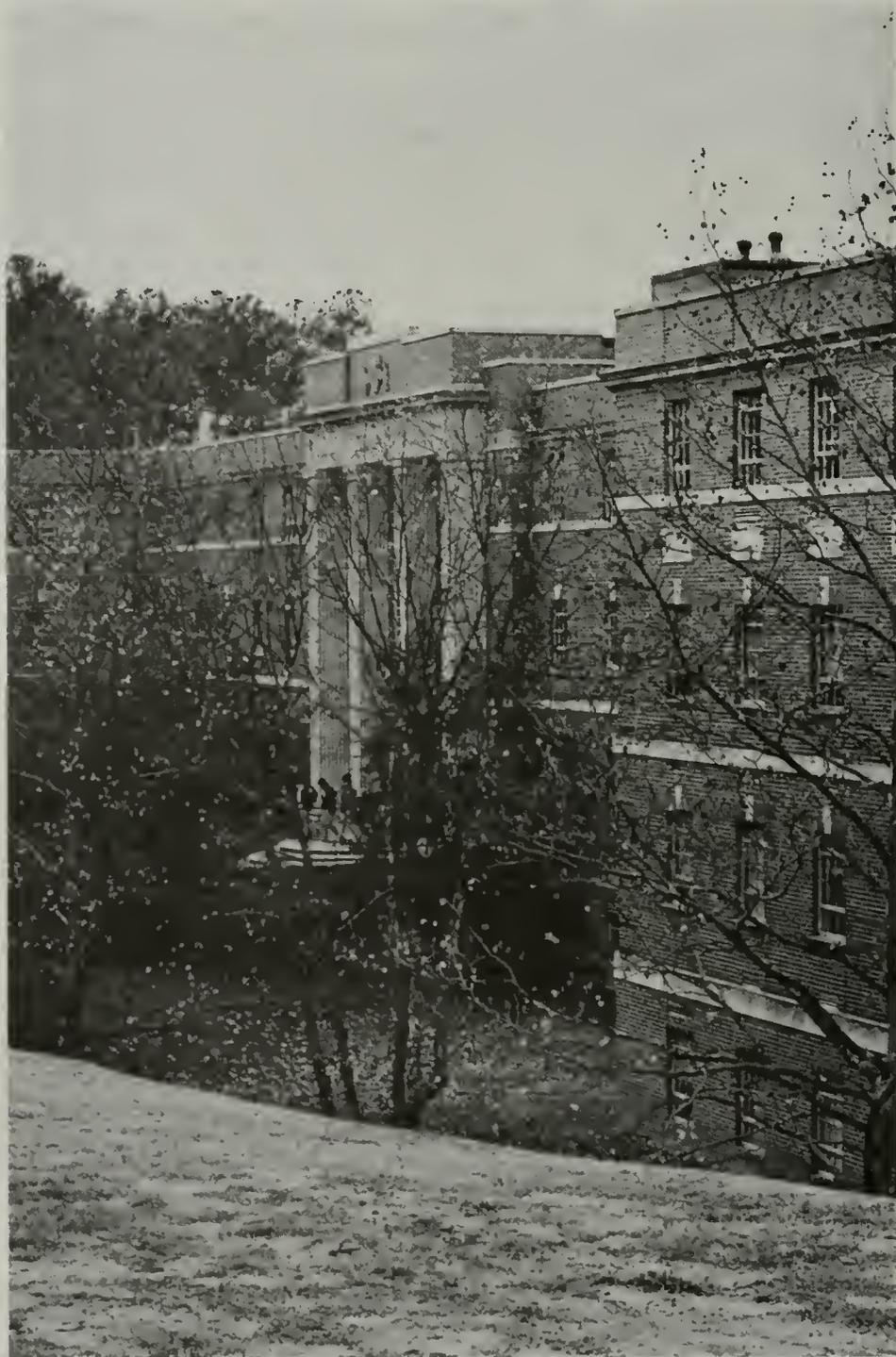
## Debts

Students are expected to meet all financial obligations to the University prior to completion of the degree. Failure to pay all University charges by the due dates specified by the University will bar the student from registration, class attendance, receipt of transcripts, certification of credits, leave of absence, or graduation until the account is settled in full. Further, an individual in default may be subject to withdrawal from the University.



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*Courses of Instruction*





Course offerings are subject to change. The student should consult the current University course schedule for listings of courses to be offered each semester.

## Introductory Courses

**191, 192. Independent Study in Forestry and Environmental Studies.** Directed reading and research. Open to qualified students in junior and senior years by consent of the student's department in Trinity College and of the School of Forestry and Environmental Studies. Units to be arranged. Fall, spring, summer. *Staff*

**194. Conserving Natural Resources.** Fundamentals of natural resource development, use, management, and protection based on principles of the natural and social sciences. Open only to undergraduates. 3 units. Spring, on demand. *Staff*

## Forest Resource Management

**204. Forest Inventory, Growth, and Yield.** Measurement of land and forests for purposes of management, appraisal, purchase, and sale. Techniques for predicting the growth and future yield of stands by various methods. 3 units. Fall. *Davison*

**205. Silviculture.** Consideration of the decision-making process by which prescriptions are formulated for regeneration, tending, and harvesting of forest stands. Biological factors underlying stand manipulation are stressed and economic, harvesting, and utilization variables are discussed as appropriate. Emphasis on principles and techniques that transcend vegetation types or geographic regions. 4 units. Spring. *Oren*

**207. Forest Pest Management.** Fundamentals of entomology and plant pathology as appropriate to understanding the impacts of insects and diseases on forest productivity and their assessment for integration into forest management. Regional case examples and complexes are evaluated in terms of pest-population, forest-stand dynamics; economic and societal constraints; treatment strategies; monitoring systems; and benefit-cost analysis. This approach seeks to develop predictive capabilities in long-range pest management and decision making. Laboratory is largely field oriented to focus on diagnostics and impact analysis. 3 units; 4 units with laboratory. Fall. *Stambaugh*

**208. Fire Behavior and Use.** Impacts of destructive agents upon forests; principles of combustion, fire behavior, danger measurement and suppression; use of fire in forest management. 3 units. Spring. *Staff*

- 210. Forest Pathology.** Diseases of North American forests and their timbers, with emphasis on current literature and management strategies. Field and laboratory diagnosis. 3 units; 4 units with laboratory. Offered on demand. *Stambaugh*
- 221. Soil Resources.** Introduction to soil resources and the interactions of forest production, management, and soil fertility. Topics include soil chemistry, physics, development, and nutrient cycling, all from the perspective of maintaining and improving forest productivity. 3 units. Fall. *Richter*
- 260. Western Field Trip.** One-week trip to observe land management and utilization practices in the western United States. Exposure to ecological, economic and policy issues, as well as watershed, wildlife and land-use questions. 1 unit. Spring. *MacKinnon*
- 261. Remote Sensing for Resource Management.** An examination of remote sensing systems as sources of information in resource management with an emphasis on aerial photography and multispectral scanners. Emphasis on the interpretation of airborne and space imagery. 3 units. Spring. *Davison*
- 262. Forest Utilization.** Introduction to utilization in the managed forest and the principal wood-using industries. Taught as a one-week field seminar. May be taken by non-forestry majors. 1 unit. Spring. *Staff*
- 301. Forest Nutrition Management.** Basic processes of soil chemistry and ecosystem nutrient cycling as regulators of forest production. Management impacts such as fertilization, fire, harvest, and biological nitrogen fixation. Laboratories include methods of determining site fertility, assessing forest productivity, and using computer simulation models to guide management decisions in forest nutrition programs. 4 units. Offered on demand. *Staff*
- 305. Harvesting Effects on Productivity.** Impacts of harvesting on the residual stand, soil properties, water quality, and future site productivity. The integration of harvesting into overall stand management through a full rotation is stressed. 2 units. Fall, on demand. *Davison*
- 307. Ecophysiology of Productivity and Stress.** Exploration of principles governing stand growth and its response to a variety of stresses. Emphasis on climate, soil resources, and competition. Stresses and their reliefs as modifiers of either the availability of resources or the physiological properties of trees. 3 units. Fall. *Oren*
- 308. Tree Biology.** Life processes and properties of trees, including anatomy, physiology, and chemistry. Focuses on the tree as an integrator of ecological site factors in the production of value from the forest. 2 units. Offered on demand. *Staff*
- 309. Forest Regeneration.** Natural and artificial means of creating new forest stands of desirable quality and stocking. Biological, economic, and technical factors are considered. Prerequisite: 205. 2 units. Offered on demand. *Staff*
- 322. Microbiology of Forest Soils.** Ecology of the microbial populations of forest soils, with emphasis on rhizosphere interactions, root pathogenesis, and mycorrhizae. Prerequisite: consent of instructor; mycology and bacteriology are recommended. 4 units. Offered on demand. *Stambaugh*
- 361. Forest Resource Management.** The integration of biologic, socioeconomic, and environmental constraints in planning, organizing, and managing forest properties for maximizing production of timber and other benefits. Emphasis on analysis of growth and yield for regulation of growing stock; application of economic imperatives in decision making, including valuation of forest land and related resources; and use of microcomputers in simulating management options. Students develop and present a viable management plan for a portion of the Duke Forest. Prerequisites: 204, 205, 270, 302. 4 units. Spring. *Parks*
- 367. Seminar in Forest Resource Management.** Examination of concepts, practices, and policies employed in the management of industrial and public forests; discussion of the problems of large-scale forest management. Offered since 1985-86 as the Laird, Norton Distinguished Visitor Series. 1 unit. Spring. *MacKinnon*

## Resource Ecology

**211. Applied Ecology and Ecosystem Management.** An application of ecological principles to applied resource and environmental problems with an emphasis on the ecosystem as a basic working unit. Perspectives include such topics as land/water interactions, the patchiness concept, succession, energy flow, productivity, mineral cycling, perturbation effects on ecosystems, and limiting factors. Laboratory studies will focus on the team approach to analyzing the biotic and abiotic components of the ecosystem and impact analysis. 4 units. Fall. *Richardson*

**212. Ecological Toxicology.** Study of environmental contaminants from a broad perspective encompassing biochemical, ecological, and toxicological principles and methodologies. Discussion of sources, environmental transport and transformation phenomena, accumulation in biota and ecosystems. Impacts at various levels of organization, particularly biochemical and physiological effects. Prerequisites: organic chemistry and vertebrate physiology or consent of instructor. 3 units. Fall. *Di Giulio*

**213. Forest Ecosystems.** Introduction to basic processes regulating ecosystem development, structure, and function leads to examination of ecosystem concepts and the effects of management activities on ecosystem processes and patterns. Elective laboratory, taught as FES 214, introduces field aspects of forest ecology. 3 units. Spring. *Richter*

**215. Environmental Physiology.** Examination of the concepts of tolerance, limiting factors, bioenergetics, nutrition, stress physiology, homeostasis, and alleopathy for both plant and animal life. Discussion of procedures for and examples of monitoring physiological perturbations due to resource manipulation. 3 units. Spring, even-numbered years. *Di Giulio and Oren*

**216. Applied Population Ecology.** Discussion of population dynamics of natural and exploited populations. A quantitative approach with an emphasis on mathematical models and their application to population problems. 3 units. Spring, odd-numbered years. *Maguire*

**218. Barrier Island Ecology.** Adaptation of plants to barrier island migration and other physical characteristics of the coastal environment. Major emphasis will be placed on management of barrier beaches from Maine to Texas and the impact of human interference with natural processes. Field studies. Prerequisite: course in general ecology. Offered at the Duke Marine Laboratory, Beaufort, North Carolina. C-L: Botany 218 and Marine Sciences 218. 6 units. Summer, term 1. *Staff*

**242. Environmental Chemistry.** Principles of chemical kinetics and equilibria applied to quantitative description of the chemistry of lakes, rivers, oceans, atmospheric waters, groundwaters and selected treatment processes. Equilibrium, steady state and other kinetic models applied to processes such as the carbonate system, coordination chemistry, precipitation and dissolution, oxidation-reduction, photochemistry, heterogeneous reactions, gas transfer and some aspects of atmospheric chemistry. C-L: Civil Engineering 242. 3 units. Spring. *Faust*

**266. Ecology of Southern Appalachian Forests.** One-week introduction to forest ecosystems in the southern Appalachians, including species identification, major forest types, patterns in ecosystem distributions, and effects of human activities. 1 unit. Fall. *Staff*

**267. Wildland and Wildlife Management.** Overview of topics in wildlife and habitat management, each focusing on biological, economic, legal and sociopolitical constraints; action variables and points of influence; and institutional contexts at the local, national and international levels. Lectures, guest speakers and student presentations. 3 units. Fall, on demand. *Maguire and Boyce*

**312. Wetlands Ecology.** The study of bogs, fens, marshes, and swamps. Emphasis on processes within the ecosystem: biogeochemical cycling, decomposition, hydrology, and primary productivity. Ecosystem structure, the response of these systems to per-

turbations, and management strategies are discussed. A research project is required. Prerequisites: 211 or equivalent and consent of instructor. 3 units. Spring, odd-numbered years. *Richardson*

**313. Advanced Topics in Ecotoxicology.** Discussion of current issues. Topics vary but may include chemical carcinogenesis in aquatic animals; biomarkers for exposure and sublethal stress in plants and animals; techniques for ecological hazard assessments; and means of determining population, community and ecosystem level effects. Lectures and discussions led by instructor, guest speakers and students. Prerequisite: 212. 3 units. Spring, odd-numbered years. *Di Giulio*

**314. Integrated Case Studies in Toxicology.** Students are assigned topics relative to their chosen research discipline in toxicology and are asked to develop case studies to present at a roundtable workshop. Emphasis on review and analysis of toxicological problems from a holistic (multidisciplinary) viewpoint. 1 unit. Spring, on demand. *Richardson*

**316. Case Studies in Environmental Management.** Introduces an integrated ecological, economic, and sociopolitical approach to solving resource management problems. Students work in groups to analyze local problems and present their results. Emphasis on setting goals for research, project organization, selection of quantitative tools, preparation of written and oral presentations. Prerequisites: 211 and 251 or equivalents. 4 units. Spring. *Staff*

## Water and Air Resources

**230. Weather and Climate.** Overview of the science of meteorology and principles of climatology, especially as applied to problems in ecology and natural resource management. Emphasis on the processes and characteristics of weather phenomena and local and regional climates. General introduction to sources of climatic data and climatic data analysis. Includes laboratory. 4 units. Fall. *Knoerr*

**231. Environmental Climatology.** Applications of climatology to solving problems in the areas of applied ecology; land use planning; forest, water resource, and air quality management. History of the atmosphere and world climates is considered to provide a perspective on current conditions. Impact of weather on human behavior, property, and natural resource management. 3 units. Spring, on demand. *Staff*

**232. Microclimatology.** Introduction to the micrometeorological processes. Discussion of the integration of these processes and the resulting microclimates in the rural (forest, field, and water surface) and urban environments. Methods for modification of the microclimate. 3 units. Spring, on demand. *Knoerr*

**234. Watershed Hydrology.** Introduction to the hydrologic cycle with emphasis on the influence of land use, vegetation, soil types, climate, and land forms on water quantity and quality and methods for control. Development of water balance models. Analysis of precipitation patterns, rainfall and runoff, and nonpoint source impacts. Statistical handling and preparation of hydrologic data, simulation and prediction models, introduction to groundwater flow, laboratory and field sampling methods. 4 units. Fall. *Staff*

**236. Water Quality Management.** Types, sources, and effects of pollutants. Water quality standards and criteria. Engineering approaches to water management. Mathematical models and their application to water quality management. Federal regulations, in particular, the Federal Water Pollution Control Act amendments of 1972 and 1977. Economic and policy analysis for water quality management planning. 3 units. Fall. *Reckhow*

**237. Watershed Modeling.** Analysis of models for individual hydrologic processes. Evaluation of management-oriented watershed models based on the hydrologic process models. Simulations with watershed models as a basis for management decision making to optimize water yield quantity, timing or quality under various vegetative, climatic, topographic, and soil conditions. Prerequisite: 234. 3 units. Spring. *Knoerr*

**330. Environmental Monitoring and Instrumentation.** Methods of measuring and monitoring the earth's physical environment with emphasis on water and air resources. Characteristics and uses of contemporary sensors, measurement and data acquisition systems. Methods of obtaining and processing computer compatible data records. Includes laboratory. 4 units. Spring, on demand. *Knoerr*

**331. Water Resource Systems.** Introduction to the fundamentals of water resource systems planning and management. Emphasis on optimization, simulation, statistical, and economic principles for management of surface and subsurface water resources. Topics include project selection and evaluation, design of standards and regulations, stochastic and deterministic quantity/quality simulation models, water supply and waste water treatment technologies, decision and risk analysis. 3 units. Spring. *Staff*

**332. Air Quality Management.** Types and sources of atmospheric contaminants including effects of industry, urban development, farming and forestry practices, and recreation. Meteorological effects on air quality. Determination of air quality trends and the application of management systems from a meteorological point of view. Types and applications of air quality models. Performance of air quality models under various emission sources, meteorological, and topographic conditions. 3 units. Fall, on demand. *Staff*

**335. Water Quality Modeling.** Development and evaluation of simulation models of surface water quality. Mechanistic descriptions of aquatic ecosystems and materials transport. Parameter estimation. Methods of solution, including uncertainty analysis. Prerequisites: 234, 236, 350, 355. 2 units. Fall, odd-numbered years. *Reckhow*

## Quantitative Methods

**302. Models in Forestry.** Students learn how to design and choose models for forestry and ecology. Emphasis on using models to develop strategy and evaluate policy for culturing forests and related ecosystems. Subjects include timber, wildlife, water, recreation and cash flow. 3 units. Fall. *Boyce*

**350. Applied Regression Analysis.** Regression analysis with nonexperimental data using ordinary least squares. Emphasis on assumption violations: consequences and correctives. Analysis of variance and time series analysis using Box-Jenkins methods as time permits. Applications to problems in natural resource management. Prerequisite: 251 or equivalent. 4 units. Spring. *Reckhow*

**355. Optimization Methods for Resource Management.** Introductory survey of optimization techniques useful in resource management and environmental decision making. Numerical techniques for unconstrained optimization, linear programming, dynamic programming, and optimal control methods. Prerequisite: consent of instructor. 3 units. Fall. *Staff*

**357. Systems Ecology and Modeling.** Concepts of systems analysis and simulation modeling in ecology. Examples emphasize use of systems analysis and modeling to solve environmental management problems. Prerequisites: ecology, introductory statistics, computer programming on microcomputer and TUCC; additional quantitative background desirable. 3 units. Spring, even-numbered years. *Maguire*

**385. Decision Theory and Risk Analysis.** Bayesian decision theory, including probability, subjective probability, utility theory, value of sample information, and multiattribute problems. Behavioral decision theory. Applications of decision theory in resource and environmental policy making. Prerequisite: 251 or equivalent. 3 units. Spring, even-numbered years. *Reckhow and Maguire*

## Resource Economics and Policy

**270. Resource Economics and Policy.** The application of economic concepts to private and public sector decision making concerning natural and environmental resources.

Investment analysis, benefit-cost analysis. Planning and policy concepts. Prerequisite: introductory course in economics. 4 units. Spring. *Staff*

**283. Environmental Policy and Values.** Discussion of varying philosophical approaches to the allocation and use of natural resources and the environment. Views espoused by ecologists, preservationists, naturalists, conservationists, economists, planners, theologians, lawyers, and political scientists are considered. Through extensive readings, students consider who values what in society, and who gets what, when, and how. Prerequisite: consent of instructor. 3 units. Fall. *Staff*

**285. Land Use Principles and Policy.** Consideration of four major roles of land in the United States: as a producer of commodities, financial asset, component of environmental systems, and location of development. Analysis of market allocation of land, market failure, role of public planning and regulation. 3 units. Fall. *Healy*

**372, 373. Advanced Natural Resource Economics.** Survey of advanced topics in natural resource and environmental economics. Emphasis on renewable resources and public policy. Prerequisite: consent of instructor. Two courses, 3 units each. Fall and spring. *Hyde*

**381. Natural Resource Policy.** An examination of institutions and processes in the public sector that influence natural resource allocation and use of the environment. Emphasis on political allocation of resources, especially legislative and administrative processes. Topics include the roles of democracy and free enterprise, lobbying, public participation, planning, and advocacy. Prerequisite: consent of instructor. 3 units. Spring. *Staff*

**382. International Environmental Problems.** Global and transboundary issues; management of international disputes. Environmental consequences of Third World development, including industrial pollution, rural land degradation, deforestation, misuse of chemicals, protection of biodiversity. Comparative analysis of policies. 3 units. Spring. *Healy*

**388. Seminar in Resource and Environmental Policy.** Discussion of the political, legal, and socioeconomic aspects of public and private action in environmental quality control and management. Prerequisite: consent of instructor. 1 unit. Fall, spring. *Staff*

**389. Seminar in Forest and Conservation History.** Evolution of resource agencies, forest industries and associations, and conservation/environmental organizations. Public policies for land and resources are compared with priorities and constraints in the private sector. Prerequisite: consent of instructor. 2 units. Spring, odd-numbered years. *Steen*

## Intensive Courses

**258. Forest Appraisal.** Presentation of the principles of real estate appraisal as they apply to valuation problems in forestry. Consideration of appraisal theory, accounting and tax concepts in forest land management. Application of financial analysis techniques to forest land management through lectures and problem-solving sessions. 3 units, intensive. Fall. *Sizemore*

**265. Resource Management Decisions.** Examination of aspects of managerial accounting and financial analysis crucial to decision making in the management of natural resources. Topics include concepts of accounting and cost accounting, analysis of financial statements, planning and budgeting, management control, sources and uses of funds, breakeven analysis, measurement and projection of operating results, and analysis of capital investment decisions. Part 1, analysis and control; part 2, investing in the future. 1 unit each week, intensive. Fall. *MacKinnon*

**281. Environmental Law.** Examination of contemporary environmental law and its common law antecedents in the context of the American legal system. Objectives are to provide basic training in analyzing cases and statutes, applying knowledge in a classroom setting, and using a law library. Open to professionals and Senior Professional Program candidates only. 1 unit, intensive. Spring. *Heath*

**288. Forest Taxation.** Review of the principles of timber taxation as applied to forest management, including income (capital gains), estate and property taxation. Types of timber transactions discussed include outright sales, cutting contracts, and leases under the law as amended by the 1986 Tax Reform Act. Proper treatment of expenses, depletion basis, and casualty losses are considered. Emphasis on solution of practical problems using actual reported cases. 1 unit, intensive. Fall, spring. *Condrell*

**306. Dynamic Modeling of Forestry and Natural Resource Management Strategies.** Simulation of the financial aspects of silvicultural practices when used to produce timber, wildlife habitat, water, range, and recreational benefits; economics of production; and trade-offs for multiple benefits. Students use actual forest inventories to devise silvicultural strategies, which are simulated with the system dynamics models DYNAST and STELLA on microcomputers. 1 unit, intensive. Fall. *Boyce and Easterling*

**310. Hazardous Waste Management: RCRA and Superfund.** Overview of the nation's hazardous waste management programs, the Resource Conservation and Recovery Act regulatory program and the Superfund toxic site clean-up program. Focus on application and implementation. 1 unit each week, intensive. Part 1, fall; part 2, spring. *Davidson*

**345. Introduction to Geographic Information Systems.** Presentation of fundamental concepts of spatial data handling and computer assisted map analysis. Topics include data structure, storage techniques, spatial statistics, thematic mapping, analytic functions, cartographic modeling, map encoding, current systems and applications. Open to professionals and Senior Professional Program candidates only. 1 unit, intensive. Fall. *Berry*

**366. Mathematical Modeling of Lake and Reservoir Water Quality.** Practical application of mathematical models of lake and reservoir water quality. The major objective is to expose the participant to a wide variety of techniques that are useful in predicting the responses of lakes and impoundments to pollutants. Statistical and mass balance models are included. Knowledge of elementary calculus and statistics is recommended. 1 unit, intensive. Fall. *Reckhow and Chapra*

**375. Timberland Investments.** Investment characteristics of timberlands, particularly with reference to institutional investors. Consideration of investment objectives (preservation of capital, return on investment, liquidity) and constraints (taxes, accounting conventions, legal requirements). 1 unit, intensive. Spring. *Mason and Howard*

**376. USDA Forest Service Inventory Data: Content and Use.** Introduction to means of applying inventory data to particular problems. How data are processed, stored and distributed. Validity, limitations and retrieval of data are described. 1 unit, intensive. Fall. *Boyce*

**384. Special Tax and Accounting Aspects of Financial Statements of Industrial Timberland Owners.** Examination of the many recent changes in tax and accounting rules which have significantly affected the financial statements of major timber companies. Open to professionals and Senior Professional Program candidates only. 1 unit, intensive. Fall. *Condrell*

## Special Studies and Projects

**200. Student Projects.** A group of five or more students may plan and conduct their own research project on a special topic, not normally covered by courses or seminars. A request to establish such a project should be addressed to the faculty council with an outline of the objectives and methods of study and a plan for presentation of the results to the school. The faculty council will designate the units to be earned and a faculty member for the evaluation and grading of the work of each participant. Fall, spring, summer.

**201. Field Studies.** Visits to and studies of resource use and management areas and activities outside the University. Variable registration fee. Units to be arranged. Fall, spring, summer. *Staff*

**299. Independent Projects.** Directed readings or research at the graduate level to meet the needs of individual students. Units to be arranged. Fall, spring, summer. Students should register for the course number listed below for the supervising faculty member.

299.2 <i>Boyce</i>	299.20 <i>Sizemore</i>
299.5 <i>Davison</i>	299.22 <i>Stambaugh</i>
299.6 <i>Di Giulio</i>	299.23 <i>Steen</i>
299.7 <i>Dutrow</i>	299.27 <i>Christensen</i>
299.10 <i>Heath, M.</i>	299.28 <i>Condrell</i>
299.11 <i>Hyde</i>	299.29 <i>Vesilind</i>
299.12 <i>Faust</i>	299.30 <i>Healy</i>
299.13 <i>Knoerr</i>	299.31 <i>MacKinnon</i>
299.15 <i>Maguire</i>	299.33 <i>Parks</i>
299.17 <i>Reckhow</i>	299.34 <i>Oren</i>
299.18 <i>Richardson</i>	299.37 <i>Alig</i>
299.19 <i>Richter</i>	

**398. Program Area Seminar.** Required seminar in each of the four program areas. Students present master's project research. 1 unit. Spring. *Staff*

**399. Master's Project.** An applied study of a forestry or environmental management problem or a theoretical research effort. A seminar presentation of the objectives, methodology, and preliminary findings is required. A written (or other medium) report at the conclusion of the project is also required. Units to be arranged. Undertaken with the guidance of the student's adviser. Fall, spring, summer.

## Numerical Listing of Courses

- 191,192. Independent Study in Forestry and Environmental Studies
- 194. Conserving Natural Resources
- 200. Student Projects
- 201. Field Studies
- 204. Forest Inventory, Growth and Yield
- 205. Silviculture
- 207. Forest Pest Management
- 208. Fire Behavior and Use
- 210. Forest Pathology
- 211. Applied Ecology and Ecosystem Management
- 212. Ecological Toxicology
- 213. Forest Ecosystems
- 215. Environmental Physiology
- 216. Applied Population Ecology
- 218. Barrier Island Ecology
- 221. Soil Resources
- 230. Weather and Climate
- 231. Environmental Climatology
- 232. Microclimatology
- 234. Watershed Hydrology
- 236. Water Quality Management
- 237. Watershed Modeling
- 242. Environmental Chemistry
- 258. Forest Appraisal (intensive)
- 260. Western Field Trip
- 261. Remote Sensing for Resource Management
- 262. Forest Utilization (intensive)
- 265. Resource Management Decisions (intensive)
- 266. Ecology of Southern Appalachian Forests
- 267. Wildland and Wildlife Management
- 270. Resource Economics and Policy
- 281. Environmental Law (intensive)
- 283. Environmental Policy and Values
- 285. Land Use Principles and Policy
- 288. Forest Taxation (intensive)
- 299. Independent Projects
- 301. Forest Nutrition Management
- 302. Models in Forestry



- 305. Harvesting Effects on Productivity
- 306. Dynamic Modeling of Forestry and Natural Resource Management Strategies (intensive)
- 307. Ecophysiology of Productivity and Stress
- 308. Tree Biology
- 309. Forest Regeneration
- 310. Hazardous Waste Management: RCRA and Superfund (intensive)
- 312. Wetlands Ecology
- 313. Advanced Topics in Ecotoxicology
- 314. Integrated Case Studies in Toxicology
- 316. Case Studies in Environmental Management
- 322. Microbiology of Forest Soils
- 330. Environmental Monitoring and Instrumentation
- 331. Water Resource Systems
- 332. Air Quality Management
- 335. Water Quality Modeling
- 345. Introduction to Geographic Information Systems (intensive)
- 350. Applied Regression Analysis
- 352. Matrix Methods for Resource Systems
- 355. Optimization Methods for Resource Management
- 357. Systems Ecology and Modeling
- 361. Forest Resource Management
- 366. Mathematical Modeling of Lake and Reservoir Water Quality (intensive)
- 367. Seminar in Forest Resource Management
- 372, 373. Advanced Natural Resource Economics
- 375. Timberland Investments (intensive)
- 376. USDA Forest Service Inventory Data: Content and Use (intensive)
- 381. Natural Resource Policy
- 382. International Environmental Problems
- 384. Special Tax and Accounting Aspects of Financial Statements of Industrial Timberland Owners (intensive)
- 385. Decision Theory and Risk Analysis
- 388. Seminar in Resource and Environmental Policy
- 389. Seminar in Forest and Conservation History
- 398. Program Area Seminar
- 399. Master's Project

# Courses Outside of the School

The School of Forestry and Environmental Studies encourages students to take courses offered by other schools and departments at Duke, as well as the University of North Carolina Chapel Hill and North Carolina State University. The following are representative of courses that are available and have been taken by students in the past few years to broaden their programs of study. For additional offerings and course descriptions, students should consult the graduate school bulletins of the three universities.

## **Business, Economics**

Econometrics  
Microeconomic Theory  
Macroeconomic Analysis  
Federal and Public Finance  
Economic Growth Problems  
International Monetary Theory  
Industrial Governmental Relations  
Financial Management  
Industrial Organization  
Financial Accounting

## **Botany, Zoology**

Phycology  
Biological Oceanography  
Marine Ecology  
Comparative Physiology  
Physiological Plant Ecology  
Plant Physiology  
Community Ecology  
Evolutionary Mechanisms  
Tropical Biology

## **Environmental Science, Engineering**

Limnology and Water Pollution  
Administration of Environmental Protection  
Wastewater Treatment  
Environmental Microbiology  
Pollutant Transportation  
Hazardous Wastes  
Solid Waste Engineering

## **Forestry and Related Disciplines**

Forest Genetics  
Computer Cartography  
Soil Morphology, Chemistry, and Microbiology  
Forest Tree Improvement

## **Law**

Land Use Planning  
Judicial Administration Policy  
International Business Transactions  
Resource Law and Policy  
Environmental Law  
Wildlife Law

## **Mathematics, Statistics**

Linear Models  
Multivariate Statistics  
Computer Numerical Analysis  
Artificial Intelligence  
Linear Algebra and Digital Computation  
Bayesian Inference and Decision  
Stochastic Methods

## **Planning**

Planning Law  
Planning Problems  
Environmental Systems Analysis  
Regional Land Planning  
Water Resource Planning

## **Political Science, Public Policy**

Microeconomics and Policy Making  
Analytical Methods  
Comparative International Development  
Politics and Policy Processes

## **Toxicology**

Mammalian Toxicology  
Pharmacology and Toxicology  
Biochemical Toxicology  
Biochemistry  
Neurotoxicology  
Principles of Immunology

# Appendix

## Students Registered for the Master of Forestry Degree

- Brunet, Nicholas C. (B.S., Rensselaer Polytechnic Institute; M.B.A., University of Connecticut), Washington, Connecticut
- Cork, Travis Coleman, III (B.S., Clemson University), Conway, South Carolina
- Dombrowski, Angela Eleanor (B.S., Wake Forest University), Salisbury, North Carolina
- Grimm, Mark Wesley (B.S., Allegheny College), Indiana, Pennsylvania
- Heiss, William David (A.A.S., Michigan Technological University; B.S., Aquinas College), Manistee, Michigan
- Lusk, Elizabeth Lee (A.B., Davidson College), Greensboro, North Carolina
- McIntyre, Victor Loring (A.A., Brevard College; B.S., North Carolina State University), Durham, North Carolina
- Paddor, William Scott (B.A., University of Vermont), Evanston, Illinois
- \*Ripley, Bruce Alan (B.S., Marshall University), Huntington, West Virginia
- \*Robertshaw, Frank (B.A., The University of the South), Greenville, Mississippi
- Rowe, Claude B., III (A.L.A., Spartanburg Methodist College; B.A., Baptist College of Charleston), Walterboro, South Carolina
- \*Smidt, Mathew Frank (B.S., Doane College), Blue Hill, Nebraska
- Stewart, Francis Marion (B.S., Auburn University), Vredenburgh, Alabama
- Sullivan, James Blake (B.B.A., Columbus College), Americus, Georgia
- Travis, Edward Francis (B.S., University of Alabama), Mobile, Alabama

## Students Registered for the Master of Environmental Management Degree

- \*Akers, Susan Marie (B.S., Wake Forest University), Lake Mary, Florida
- Albee, Mark Kohler (B.A., Amherst College), Dunwoody, Georgia
- Allen, Susan McWilliams (B.S., St. Lawrence University), Arlington, Massachusetts
- Armington, Neil Alan (B.S., North Carolina State University), Raleigh, North Carolina
- Armstrong, Ann Maynard (B.A., Colby College), West Chester, Pennsylvania
- Asher, Kiran (H.S.C., Parle College-India; B.S., St. Xavier's College-India), Bombay, India
- Atwell, Victoria Vance (B.S., Davidson College), Morganton, North Carolina
- \*Augsburger, Thomas Paul (B.A., Rollins College), Auburndale, Florida
- \*Avant, Paul Robert (B.A., Colorado College), Rochester, Minnesota
- \*Babcock, Elizabeth Leigh (B.A., Lawrence University), Minneapolis, Minnesota
- \*Backus, Craig Robert (B.A., State University of New York at Plattsburgh), Acton, Massachusetts
- \*Baines, Robert Ashton (B.A., Randolph-Macon College), Washington, Virginia
- \*Baker, John Daniel (B.A., Rollins College), Ruxton, Maryland
- Bandorick, Bruce William (B.S., State University of New York College of Environmental Science and Forestry), Manlius, New York
- \*Barndt, Douglas Paul (Lenoir-Rhyne College), Raleigh, North Carolina
- Biasetti, Steven Leonard (A.B., College of the Holy Cross), East Setauket, New York
- Bisese, Patrick Lloyd (B.S., Belmont Abbey College), Harvey, Louisiana
- Black, Jennifer Rose (B.S., Western Washington University), Bellevue, Washington
- Blum, Todd Andrew (B.A., University of California-Davis), Fresno, California
- Boettcher, Helene (B.A., Glassboro State College), Laurel Springs, New Jersey
- \*Bowles, Andrea Louise (Bridgewater College), Waynesboro, Virginia
- Brandreth, Barbara Hartman (B.S., University of Arizona), Louisville, Kentucky
- \*Brucken, Elizabeth Ann (B.S., Albion College), Shaker Heights, Ohio
- Bryant, Dirk Albert (B.A., University of Massachusetts), Milton, Massachusetts
- Callender, Edward Everett (B.A., James Madison University), Reston, Virginia
- Carter, Gregory Michael (B.S., University of North Carolina at Chapel Hill), Winston-Salem, North Carolina
- Cashin, Gordon Edward (B.S., North Carolina State University), Richmond, Virginia
- Chadha, Ajay (B.S., University of California at Berkeley), Calcutta, India
- \*Chadwick, Susan Roberts (A.B., Duke University), Alexandria, Louisiana
- Chang, Lisa Heiwon (B.A., Yale University), Orange, Connecticut
- Chang, Ning-chih (B.S., National Taiwan University), Tsin-chu, Taiwan
- Crompton, Doreen Elizabeth (B.S., London School of Economics), Washington, D.C.
- \*Cusick, Mary Ellen (B.S., Duke University), Kiawah Island, South Carolina
- \*Deane, Michael (B.A., Gustaphus Adolphus College), Minneapolis, Minnesota
- DeMarco, Gregory (B.S., Trinity College), Bronxville, New York
- \*Dixon, Katherine Lea (B.A., The College of William and Mary), Franktown, Virginia
- \*Doelle, Martha Martin (B.A., Albion College), Grosse Pointe, Michigan
- \*Dolan, Kirstin Lee (B.S., Allegheny College), Sharpsville, Pennsylvania
- \*Donato, Timothy Francis (B.S., Christopher Newport College), Williamsburg, Virginia

\* Attended an undergraduate institution participating in the Cooperative College Program.

Dreyfors, John Marc (B.A., University of North Carolina at Wilmington), Wilmington, North Carolina

\*Durnin, Matthew E. (B.A., Lawrence University), Madison, Wisconsin

Elliott, Jocelyn (B.S., University of Massachusetts), Lincoln, Massachusetts

Emmott, Robert George (B.S., Virginia Polytechnic Institute and State University), Culpeper, Virginia

Fogg, Andrea Louise (B.S., James Madison University), Arlington, Virginia

\*Gausling, Mary Kay (A.S., Cincinnati Technical College; Xavier University), Middletown, Ohio

Gunster, Donald Gerald (B.S., Dickerson College), Dallas, Pennsylvania

\*Halupa, Paula Jean (B.S., Muhlenberg College), Dumont, New Jersey

\*Hane, Matthew Edward (B.A., Lawrence University), Wisconsin Rapids, Wisconsin

Hebert, John D. (B.A., Jacksonville University), Orange Park, Florida

Henning, Loren Elliott (B.A., Carleton College; M.S., Northwestern University), Chicago, Illinois

Holbrook, Lysa (B.S., North Carolina State University), Louisville, Ohio

Howard, Eric Seven (B.A., Wesleyan University), Marblehead, Massachusetts

\*Howell, Rebecca Lee (B.S., Heidelberg College), Butner, North Carolina

Hubbard, Linda Mary (B.A., Barnard College), Valley Cottage, New York

Huff, Lisa Carol (B.S., University of Tennessee), Aiken, South Carolina

Jacobson, Michael Gregory (B.A., University of Connecticut), Westport, Connecticut

Jackson, Laura E. (A.B., Bryn Mawr College), Raleigh, North Carolina

James, Joel Edward (B.A., Winona State University), Burlington, North Carolina

Jennings, Robert Hutchings (B.A., University of Virginia), Charlottesville, Virginia

\*Karris, Leo Chris (B.A., Augustana College), Park Ridge, Illinois

Kepford, Kim Shelly (B.A., University of Colorado), Boulder, Colorado

Kidd, Tara Jane (B.S., Eastern Illinois University), Barrington, Illinois

Kimball, Lisa Giddings (B.A., University of Chicago), Chicago, Illinois

\*Kjeldbjerg, Annette Diget (B.A., Cornell University), Prospect Heights, Illinois

Korfmacher, Karl Frederik (B.A., Carleton College), Redlands, California

\*Kothari, Anil (B.S., Franklin and Marshall College), North Brunswick, New Jersey

Lahm, Peter W. (B.A., Case Western Reserve University), DeWitt, New York

\*Lander, April Jane (Knox College), Galva, Illinois

Lynch, Susan Kay (B.S., Cook College-Rutger's University), Cherry Hill, New Jersey

\*Mackin, Gregory N. (B.A., Warren Wilson College), Winston-Salem, North Carolina

Mahon, Matthew John (B.A., Colby College), Pepperell, Massachusetts

\*Malott, Thomas J. (B.Ph., Miami University), Indianapolis, Indiana

\*Manning, Preston Cocke (B.S., Guilford College), Staunton, Virginia

Markewitz, Daniel (B.S., University of Michigan), Roslyn, New York

\*McKelvey, John Ridgway (B.S., The University of the South), Nashville, Tennessee

\*McKelvey, Laura Duncan (B.S., The University of the South), Nashville, Tennessee

\*Million, Tedder Clark (A.B., Duke University), Norman, Oklahoma

\*Motter, Allan Scott (B.S., Albright College), Ephrata, Pennsylvania

Munger, Chad Benson (B.A., Michigan State University), St. Johns, Michigan

\*Murphy, Patricia Ann (B.A., Alfred University), Whitesboro, New York

Nowell, June Elizabeth (B.S., University of North Carolina at Wilmington), Laurinburg, North Carolina

O'Donnell, Ellen Mary (B.A., Pennsylvania State University), Oreland, Pennsylvania

O'Loughlin, JoAnne (B.S., Villanova University), Needham, Massachusetts

Parker, Kathleen Marie (B.S.F., University of Florida), Coral Gables, Florida

Paulsen, Carl Hendrick (B.A., Middlebury College), Plainfield, Vermont

Pfister, Charles Lee (B.A., M.A., Indiana University), Bloomington, Indiana

Plé, Jean-Pierre (B.A., University of Wisconsin), Queens Village, New York

\*Puderbach, Larry Dann (B.A., Lycoming College), Hughesville, Pennsylvania

\*Ramsey, James Frederic (B.A., Knox College), Grinnell, Iowa

Rios, Monica Andrea (Ing., M.A., Catholic University of Chile), Santiago, Chile

Robertson, Rebecca Kay (B.S., North Carolina State University), Old Fort, North Carolina

Romano, Amy Marie (B.S., St. Lawrence University), Yonkers, New York

Rubin, Sarah Beth (B.S., Tufts University), Chicago, Illinois

Sauerhaft, Beth Clara (B.A., Grinnell College), Chappaqua, New York

Sopata, John Joseph (B.S., University of Wisconsin-Stevens Point), Park Ridge, Illinois

Spangler, James Anthony (B.A., DePauw University), Fremont, Illinois

Stevens, Joseph Eric (A.S., Owens Technical College; B.S., Colorado State University), Ft. Collins, Colorado

Stone, Wendy Marie (B.S., Mary Washington College), Reston, Virginia

Strawn, Terrance Mark (B.A., Macalester College), Rochester, Minnesota

\*Strong, Brian Lewis (B.A., Wittenberg University), Penfield, New York

\*Szewczak, Jason Paul (B.S., Moravian College), Whitehall, Pennsylvania

\*Tippett, John Paul (Allegheny College), Accokeek, Maryland

Trettel, John Roger (B.S., Pennsylvania State University), Erie, Pennsylvania

Valentine, Patricia Lee (B.S., University of North Carolina at Wilmington), Tallmadge, Ohio

Vasu, Amy Beth (B.S., North Carolina State University), Raleigh, North Carolina

Vilas, John Couch (B.A., Appalachian State University), Chapel Hill, North Carolina  
Weisman, Catherine Celia (B.A., Haverford College), Atlanta, Georgia  
White, David Ebbetts (B.A., University of Vermont), Bradford, Vermont  
Wolfe, Tamsen Carlene (B.A., Colby College), Sudbury, Massachusetts  
Woods, Brian W. (B.A., St. Lawrence University), Syosset, New York

## **Students in the Department of Forestry and Environmental Studies of the Graduate School**

### **In Residence**

Allen, John Morrison (B.S., M.S., Virginia Commonwealth University), Chapel Hill, North Carolina  
Beaty, Braven Brock (B.S., Duke University), Raleigh, North Carolina  
Becker, Mary Larsen (B.A., Carleton College), Hiram, Ohio  
Bevington, Stephen Raymond (B.S., University of Wisconsin; M.E.M., Duke University), Chicago, Illinois  
Bridgham, Scott D. (B.A., M.S., University of Maine; M.S., University of Minnesota), Augusta, Maine  
Conklin, Paul Sheldon (B.A., Carleton College), Minneapolis, Minnesota  
Dai, K'o-Hsiu (B.S., Taiwan Institute of Agriculture; M.S., University of Scranton), Flushing, New York  
Darby, Philip Charles (B.S., Virginia Polytechnic Institute and State University), Wilmington, Delaware  
Dong, Quan (Beijing Normal University, Beijing Medical College), Beijing, People's Republic of China  
Ecker, James W. (B.S., Bucknell University), Edgcomb, Maine  
Faulkner, Stephen P. (B.S., M.S., Louisiana State University), Baton Rouge, Louisiana  
Fendik, Edward Andrew (B.S., M.S., University of San Francisco), Sacramento, California  
Frost, Don Joaquin (B.S., Carleton College), Arlington, Virginia  
Gallagher, Evan Patrick (B.S., Virginia Polytechnic Institute and State University; M.F., Duke University), Durham, North Carolina  
Gebauer, Stephanie B. (B.S., Bucknell University), Augusta, New Jersey  
Hiser, Eric Lynn (A.B., Wabash College), West Lafayette, Indiana  
Ho, Mengchi (B.S., National Taiwan University), Taipei, Taiwan  
Huang, Ce (M.S., Shanghai Institute of Plant Physiology), Shanghai, People's Republic of China  
Hyde, Pamela Willson (B.A., Amherst College), Gates Mill, Ohio  
Lee, Lien-sheng (B.S., National Taiwan University), Taipei, Taiwan  
Li, Anan (B.S., M.S., Beijing Forestry College), Beijing, People's Republic of China  
Mercer, Daniel Evan (B.S., Stanford University; M.S., University of Michigan), Denton, Texas  
Milich, Lenard Benjamin (B.S., San Jose State University), San Jose, California  
Mitchell, James E. (B.S., University of California at Irvine; M.S., University of Michigan), Orange, California  
Moser, Warren Keith (B.A., North Carolina State University; M.B.A., M.F., Duke University), New York, New York  
Murray, Brian Charles (B.S., University of Delaware; M.S., Duke University), Potomac, Maryland  
Perko, Ann Pickett (B.S., Duke University), Durham, North Carolina  
Stow, Craig Alan (B.S., Cornell University; M.S., Louisiana State University), Baton Rouge, Louisiana  
Thieler, Edward Robert (B.A., Dickinson College), Northfield, New Jersey  
Warren-Hicks, William James (B.S., University of Houston; M.S., University of Texas), Durham, North Carolina  
Williams, Harvey Timothy (B.S., University of North Carolina at Chapel Hill), Durham, North Carolina  
Williams, Sonja Lee (B.S., M.S., University of Illinois), Urbana, Illinois  
Ye, Yazome Henri (B.S., Burkina-Faso University; M.S., Auburn University), Ouagadougua, Burkina-Faso

### **In Absentia**

Andrianarivo, Jonah Andrianasolo (D.E.A., University of Madagascar), Antananarivo, Madagascar  
Marty, Timothy David (B.S., M.S., University of Missouri), Columbus, Missouri  
Powell, Douglas Smith (B.S., University of Virginia; M.S.F., West Virginia University), Springfield, Pennsylvania  
Valentine, David William (B.A., Wittenberg University; M.S., Duke University), Albuquerque, New Mexico

### **On Leave of Absence**

Hines, Deborah Ann (B.A., University of Montana; M.F., Duke University), Durham, North Carolina  
Rieff, Susan Karol (B.S., Texas Christian University; M.P.A., University of Texas at Austin), Washington, D.C.  
Shafer, Priscilla Hoopes (A.B., Princeton University), Newton Square, Pennsylvania  
Sines, Rae Ann (B.S., University of Iowa), Pittsburgh, Pennsylvania

**Nondegree Students**

Henry, Albert Clifford, Jr. (A.S., Thomas Nelson Community College; B.S.F., Virginia Polytechnic Institute and State University), Jacksonville, North Carolina

Lu, Sheng-Long (Forestry College of Inner Mongolia), Huhehot, Inner Mongolia

Malpass, James Eugene (B.S., North Carolina State University), Delco, North Carolina

Scarpulla, Eugene Joseph (B.S., M.S., Towson State University), Towson, Maryland

Wells, Randall Marvin (A.A.S., Durham Technical College; B.S., North Carolina State University), Raleigh, North Carolina



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**1989-90**

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*The School of Law*





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*bulletin of*  
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**1989-90**

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*The School of Law*

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EDITOR  
Judy Smith  
SENIOR EDITORIAL ASSISTANT  
Elizabeth Matheson  
LAW SCHOOL EDITORS  
Janse Conover Haywood  
H. B. Robertson, Jr.

---

PHOTOGRAPHS  
Jimmy Wallace  
Les Todd

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The information in this bulletin applies to the academic year 1989-90 and is accurate and current, to the extent possible, as of June 1989. The University reserves the right to change programs of study, academic requirements, teaching staff, the calendar, and other matters described herein without prior notice, in accordance with established procedures.

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# Calendar of the School of Law 1989-90

## Summer Session

1989

May	
30	Tuesday, Tuition due
June	
3	Saturday, Orientation
5	Monday, First day of classes
July	
4	Tuesday, Holiday
August	
7	Monday, Last day of classes
9	Wednesday, Final examination
12	Saturday, Final examination

## Institute of Transnational Law (Duke in Denmark)

1989

July	
8	Saturday, Registration
10	Monday, First session classes begin
21	Friday, Last day of classes, first session
24	Monday, Second session classes begin
August	
4	Friday, Last day of classes, second session
7-8	Monday-Tuesday, Examination period

## Fall Session

1989

August	
7	Monday, Tuition due
17	Thursday, First day of class for upperclass students
19-20	Saturday-Sunday, Orientation for entering students
21	Monday, First day of classes for first-year students
October	
16-20	Monday-Friday, Recess for placement travel for upperclass students; research and writing break for first-year students
November	
20-22	Monday-Wednesday, Recess for research and writing for first-year students
23-24	Thursday-Friday, Thanksgiving recess
December	
1	Friday, Last day of class for upperclass courses and for first-year courses that continue in spring term. First-year courses taught only in fall term continue on modified schedule to minimize conflicts.
4-16	Monday-Saturday, Reading and examinations for upperclass students
8	Friday, Last day of class for first-year students meeting in fall term only
11-18	Monday-Monday, Reading and examinations for first-year students

## Spring Session

1990

January	
8-12	Monday-Friday, First-year students meet Professional Responsibility course
10	Wednesday, First day of class for upperclass courses
13	Saturday, Examination in Professional Responsibility
15	Monday, First day of classes for all first-year courses
March	
12-16	Monday-Friday, Spring break

April	
20	Friday, Last day of class for first-year courses
23-24	Monday-Tuesday, Reading period for first-year students
24	Tuesday, Last day of class for upperclass courses
25	Wednesday, Reading and examinations begin
May	
12	Saturday, Examination period ends
13	Sunday, Commencement

## University Administration

H. Keith H. Brodie, M.D., LL.D., *President*

### COMMITTEE OF EXECUTIVE OFFICERS:

Phillip A. Griffiths, Ph.D., *Provost*

Ralph Snyderman, M.D., *Chancellor for Health Affairs  
and Dean of the Medical School*

William G. Anlyan, M.D., D.Sc., *Chancellor*

Eugene J. McDonald, LL.M., *Executive Vice-President*

Joel L. Fleishman, LL.M., *Senior Vice-President*

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William J. Griffith, A.B., *Vice-President for Student Affairs*

Patricia C. Skarulis, M.A., *Vice-President for Information Systems*

Andrew G. Wallace, M.D., *Vice-President for Health Affairs*

John F. Adcock, M.B.A., *Vice-President and Corporate Controller*

Tom A. Butters, B.A., *Vice-President and Director of Athletics*

Thomas E. Dixon, A.B., *Vice-President for Administrative Services*

David B. Adcock, J.D., *University Counsel*

N. Allison Haltom, A.B., *Secretary of the University*

## Law School Administration

Pamela B. Gann, *Dean*

Robert P. Mosteller, *Senior Associate Dean for Academic Affairs*

Gwynn T. Swinson, *Associate Dean, Student Affairs and Admissions*

Evelyn M. Pursley, *Associate Dean, Alumni Affairs and Annual Giving*

Judith A. Horowitz, *Associate Dean, International Studies*

Lucille M. Hillman, *Associate Dean, Major Projects*

Richard A. Danner, *Director, Law Library*

Sherry L. Caplan, *Administrative Assistant Senior, Budget and Personnel*

Cynthia A. Peters, *Director, Placement*

Charanne C. Clarke, *Administrative Assistant, Computer Services*

Mary T. Hawkins, *Financial Aid Counselor*

Nancy B. Hillsman, *Coordinator, Alumni Affairs*

Ann Marie Nebel, *Coordinator, Annual Giving*

P. Anita Parsley, *Coordinator, Major Projects*

Mary Jane Flowers, *Staff Assistant, Publications*

Janse Conover Haywood, *Staff Specialist, Communications and Conferences*

Sally M. Alston, *Staff Specialist, Student Records*

Debra R. Hill, *Staff Assistant, Major Projects*

Peggy E. House, *Staff Assistant, Support Services*

June C. Hubbard, *Editorial Assistant, Senior*

Sarah F. Roberts, *Staff Assistant to the Director, Library*

Kay G. Walker, *Staff Assistant, Student Services*

Tonya E. Jacobs, *Staff Assistant, Dean's Office*

Lynda M. McBroom, *Staff Assistant, Alumni Affairs and Annual Giving*

Sandra R. Peters, *Staff Assistant, Placement*

Joann G. Rausch, *Staff Assistant, Admissions*





Altruism combined with realism; knowledge of fundamental principles and capacity to apply them; courage to insist on the right and patience to achieve it; understanding of the timidity of the weak; fearlessness of the domination of the powerful; sympathy for the mistakes of the indiscreet; caution of the craftiness of the unprincipled; enthusiasm for that which is fine and inspiring; reverence for that which is sacred; these are some of the attributes of great lawyers.

*Justin Miller*  
*Dean, 1930-34*  
*Duke University School of Law*

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*The Distinction of Duke*



## Duke University

Of the major American universities, Duke has the most recent origins. Duke University was founded in 1924 with a single giant benefaction to a small but well-established Methodist college. It promptly took a place among the newly prominent American universities, adding professional schools of national stature in divinity, engineering, law, and medicine to an increasingly excellent undergraduate college. The Medical School was the first to attain international stature, and its training program and hospital are today among the finest in the world. The divinity, engineering, and undergraduate programs are all now widely recognized as among the best. In recent years, the University has added a Graduate School of Business which has achieved an excellent reputation in a short period of time. A strong initiative is now under way to increase the stature of the Graduate School.

The Law School was established as a graduate professional school in 1930, although its roots can be traced to lectures on law conducted in Trinity College as early as 1864 by the then president of the college. The Law School quickly thereafter acquired a distinguished law faculty, and began competing for the ablest law students in the United States. Its development in the early post-World War II era was impeded by the difficulty of attracting faculty and students to the segregated South, an impediment that began to dissolve about 1960 and which seems now thankfully to have disappeared.

## Aims

The aims of the Law School at Duke are not distinctive among university law schools. The school strives to serve its students and the law by providing a place where professors and students share an effort to explore, to master, and to illuminate law.

Duke does not expect all law students to come to professional school with well-defined career goals; these would necessarily be premature, and often ill-conceived. The Law School does expect its students to bring a respect for the academic enterprise and a curiosity about the institutions and the values of law. It also expects that those who leave it after three years of professional study will share a commitment to the craft of law, and a spirit that will help them bear important responsibilities through all of their productive years, whether or not their careers keep them in conventional law practice. The contribution which Duke hopes to make to its students is to provide an environment in which shared commitments can germinate and professional maturation flourish. Some of the means by which Duke seeks to make such a contribution are distinctive.

## The Learning Environment

The Law School at Duke is a learning environment different from that of most law schools serving competitively selected students. The relation of the professional students to one another is not that which is usually found.

Duke law students come from all parts of the United States, and in significant numbers from other parts of the world. About a tenth are graduates of Duke's Trinity College, and a partly overlapping tenth are from North Carolina; thus, the great majority of Duke law students have few prior contacts with the area. While there is no university housing set aside for law students, most do live within a few minutes of the school. As a result of these circumstances, Duke law students are more likely than others to find their social activities merging with their professional relations.

Duke law students are persons who have known substantial academic success. Most have attended competitive undergraduate schools; most have academic averages nearer *A* than *B*; and most have Law School Admission Test scores in the low forties or higher. As one should expect from such a group, they are competitive and industrious. The Law Library receives intensive use by students throughout most weekends and a few students can be found there into the small hours of most nights.

At the same time, however, the students are in competition with one another to only a limited degree. This is so because Duke law graduates disperse more broadly on graduation than do those of any law school; their placement market is very good; and it is rare for two Duke students to be in direct competition for the same first job. This circumstance, combined with the sociability of the students, produces a competitive environment that is more supportive than most.

This condition is enhanced by the relatively small size of the school. The school aims at an entering class of about 180. Several of the schools with which Duke competes for the most able students are twice that size, and some are three times as big. While size may offer advantages, it also depersonalizes relationships among students.

Despite the small size of the school, there is an unusually large number of opportunities for upperclass students to participate in significant shared professional activities. Thus, the Law School publishes three widely circulated journals which publish student scholarship and which are edited by students, with varying degrees of faculty involvement. A higher percentage of Duke law students are engaged in such activities than is the case for any other law school.

It is also perhaps pertinent that the law building at Duke was built for functional use, not as a monument. The building is less handsome than most at Duke, and is now small for the level of activity that it houses. Plans for its renovation and enlargement have been made and funds are now being raised for that purpose. The first part of the renovation in a portion of the Law School library will be completed during the summer and early fall of 1989.

Finally, the Duke law faculty is more accessible than most. In part, this reflects a curricular design which brings each first-year student into a tutorial relationship with a faculty member. In part, it reflects the ethic of the faculty that their profession is teaching and scholarship, not the practice of law; most professors are in their offices on most days throughout the calendar year.

For these reasons, the environment of the Law School is distinctive. Duke law students compete vigorously, but as friends. While alienation and hostility are traits not unknown to Duke, they do seem to be less common and less intense than at most major national law schools.

## Professionalization

The core of the Duke law curriculum for professional students is not distinctive in its content. The six basic first-year required courses are found in all law curricula. Most Duke

law students elect in upperclass years the same large standard courses that law students elsewhere elect.

This standardization of law curricula is responsive to standardized student expectations. Law students everywhere tend to approach the discipline as a body of rules; as lawyers, they seek to know the rules applicable to the most familiar transactions and events. This view of the law is not wrong, but it is misleadingly incomplete. Legal rules are countless; many are subject to frequent change; they conflict; and their words often conceal more meaning than they reveal. Lawyers are people who understand and influence the ways in which elusive rules work in the minds of officials who must enforce them. Their discipline is thus more than a mass of data to be assimilated; it is an activity which requires judgment and gift of expression as well as information.

For this reason, wise law students everywhere concentrate on the exercise and development of basic communication skills: reading, writing, speaking, and listening. The teaching methods employed at Duke in the core curriculum are, like those employed elsewhere, intended to afford ample opportunities for such self-development.

In recent decades, however, there has been growing concern in the legal profession about the adequacy of traditional skills teaching. In part, this concern reflects impatience with the inability of any academic program to develop in adult students some of the habits and traits that make professional lawyers effective. At the same time, this concern has been partly evoked by a growing gulf between academic law and professional practice which results from what may be described as the academization of law and other professional faculties. Law faculties are now often more closely connected in their professional identities with the academic profession than with the legal profession. This development has a number of consequences, many of them surely positive; but a negative one is a possible diminution in the utility of the faculty and program in the students' pursuit of general or specific professional aims. Duke has sought to retain an emphasis on training students for professional work in several ways, some of which may be distinctive.

First, the Duke law faculty has striven to maintain a wide range of scholarly interests in fields of law which are also of interest to students with professional aspirations. Although a relatively small faculty, Duke is particularly well-represented among the leading national scholars in such fields as business organizations, taxation, real estate finance, intellectual property, civil procedure, criminal procedure, and economic regulation. There may be some cost to this in that the Duke law faculty has fewer scholars devoted to the study of constitutional law and legal theory than do some other faculties of comparable size. Yet no one familiar with either of these two fields can deny that the contributions of the Duke law faculty to them is substantial, surpassed by few faculties.

Second, the Law School at Duke has emphasized in its entry-level recruiting of faculty the importance of significant professional experience as a lawyer. Judicial clerkships, for example, are regarded by the Duke faculty as an excellent beginning of a professional career in law, and one to be sought by many Duke law graduates, but usually not as a sufficient qualification for faculty appointment. Most of the recent professors tenured at Duke had significant professional experience, one as a public defender, one as a lawyer in a program of legal services for the poor, one in a small firm specializing in environmental litigation, one as an appellate advocate for the United States Department of Justice, and one as a tax lawyer in a major private firm. Such persons can perhaps be expected to identify more readily with the career aims of students than can faculty who quickly rejected the practice of law as a career for themselves.

Third, the Duke law faculty has made an uncommon investment of energy in the development of the professional skills of its first-year students. This commitment is reflected in the intensive tutorial writing program which demands an exceptionally large effort on the part of students as well as teachers, and in the first-year course in professional advocacy, which aims to sensitize students to some of the ethical issues of advocacy and to provide experience in that role.



Fourth, Duke has developed a distinctive clinical program that emphasizes clinical training through simulation and covers a wide variety of fields of legal study. At the same time, clinics in child advocacy, pretrial civil litigation, alternative dispute resolution, and criminal litigation provide opportunities for a hands-on clinical experience to a limited number of students.

The emphasis on simulation has enabled the Law School to draw into its clinical program a very distinctive adjunct faculty teaching a varied array of clinical courses. Among the clinical seminars and courses offered at Duke in recent years have been Antitrust Litigation, Business Planning, Child Advocacy, Collective Bargaining, Commercial Arbitration, Commercial Practice, Criminal Practice, Entertainment Law, Estate Planning, Federal Appellate Practice, Federal Civil Rights, Forensic Psychiatry, International Transactions with Japan, Japanese Environmental Dispute Resolution, Land Use Planning, Negotiation, Professional Malpractice, and Professional Responsibility. Some of the instruction is provided by regular faculty, but much of it is provided by distinguished lawyers and judges selected by the faculty and working with its Clinical Studies Committee. Instruction is scheduled to accommodate some who come long distances to participate. Thus, several of the most distinguished members of the American judiciary teach regularly at Duke, including six who sit on the United States Courts of Appeals. These persons are all eminently able and willing to share their professional skills and judgment.

An additional feature of the Duke program of professionalization is the *Alaska Law Review*, a journal edited and substantially written by Duke law students for the lawyers of Alaska and funded by the Alaska Bar Association. Materials published in this journal are shaped by conversations between the senior editors and lawyers, judges, and legislators in Alaska which are held on the annual trip of the senior student staff to that state.

Another important feature of any professional law school's program for its students is the relationship it maintains with its alumni. As noted, Duke law alumni are the most dispersed law alumni body. This is an advantage to the school in using its alumni to recruit admissions candidates; several hundred alumni now engage in that work. In addition, the law alumni provide placement counseling and assistance in many areas of practice and in many locations through contacts with individuals and through participation in the annual Career Conference at the Law School. In an effort to maintain a sense of community and identity with the Law School and among its alumni, the Alumni Affairs Office coordinates and supports the activities of local law alumni associations. Over forty such associations now exist, including three international groups (in Europe, Tokyo, and Taiwan). Alumni awareness of the progress and needs of the school is maintained through annual educational and social events attended by Law School representatives. This program, in addition to regularly scheduled reunions at the Law School, serves to continue the ties of alumni and school through the decades and despite the distance.

In light of these features of its program, it is fair to say that the utility of the school to most persons seeking to develop themselves as legal professionals is not surpassed by that of any other school. While Duke, no more than any academic program in law, cannot warrant the professional competence of all its graduates, it has not forgotten the immediate aims of its professional law students and affords ample opportunities for its students to enhance the basic skills and to develop the appropriate values needed for effective professional work in law. It is for these reasons, and because of the very high quality of the students attracted to Duke, that the placement opportunities are so strong.

## Intellectual Isolation and Integration

This commitment to the professional aims of its students is not belied by the school's equally strong commitment to unify its students' professional learning with the broadest dimensions of knowledge about human affairs and institutions. It is a widely shared

impulse of law students to seek training rather than education, to exclude from their vision all learning save that which can be applied on the job on the morrow. Intellectual parochialism is, however, often a mark of the mediocre, unimaginative lawyer, and every good law school is at pains to open the minds of its students to the broader implications and consequences of law. Students who are narrowly careerist in their aims in law school can do enduring harm to themselves.

Thus Duke warmly encourages joint studies which link law study to other insights into the human condition. The Law School early established the first and leading journal of interdisciplinary legal studies. The Duke law faculty has more joint appointments than any law faculty, regardless of size. More Duke law students are pursuing joint degrees than are doing so at any other law school, again regardless of size. In these respects, Duke is very much a *university* law school.

Among the professors holding secondary joint appointments in the Law School are persons whose primary intellectual attainments and interests are in economics, English, history, philosophy, political science, psychology, psychiatry, and religion. The group includes several senior persons of extraordinary attainment. Illustrative of the strength this gives to the curriculum is the course on constitutional history, taught by a regular member of the faculty who is an eminent scholar of the Constitutional Convention of 1787, jointly with two historians, one the preeminent historian of the Reconstruction and the other the preeminent historian of the New Deal. Likewise, students pursuing an interest in legal theory have access not only to a noted scholar of jurisprudence, and to younger scholars whose primary interests are the application of feminist social and political theory to family law or the ethical and philosophical underpinnings of environmental law, but also to a noted philosopher of law and legal reasoning and a heralded literary theorist who is applying literary theory to law.

In developing this joint-appointment faculty, the Law School has not limited itself to relations with professors teaching in other fields at Duke, but has sought out scholars at other universities in North Carolina. In addition, there are several members of the law faculty holding secondary appointments in other fields such as medicine, divinity, and public policy science, as well as many others whose primary intellectual interests span law and other fields.

The key to joint studies for law students at Duke in recent years has been the summer-entering program. Students commencing their studies in early June are enabled to complete two of the six major first-year courses by mid-August. They are then free to enrich their first-year Law School experience with broad exposure to another field, particularly economics, English, history, philosophy, or political science, so that in one year they will have completed half of the Graduate School requirements for a Master of Arts degree. Both degrees can be completed within the remaining two academic years with a slight overload. This feature of the Duke program is unique. It is not offered as a means of elevating the professional salability of the school's graduates, but as a means of preserving in professionals a life of the mind, and of promoting a broader view of the discipline of law which may over the longer term enhance one's professional judgment.

Another distinctive feature of the Law School that contributes to the widening of professional vision is the Private Adjudication Center. The center, a freestanding non-profit corporation governed by a board comprising Duke Law alumni and faculty, undertakes research and education in the field of alternative dispute resolution (ADR) as well as providing extensive ADR services to private parties. The center's activities are premised on a recognition that traditional litigation can be both slow and costly to the parties involved and that, in some circumstances, alternative methods of resolving disputes can yield better results more quickly and at lower cost. The center aims to become increasingly involved in the training of law students, with a view to opening their eyes to shortcomings of traditional litigation methods and to the potential uses of ADR. For example, a clinical course is being prepared in which students will analyze real cases—particularly in the area of medical malpractice, where the center is engaged in a major research and



ADR development effort—to determine their amenability to some type of ADR. The center also uses, and can offer students opportunities to employ, social science research methods in the empirical analysis of procedures and ADR techniques. Because the center provides a significant volume of services, it is possible to conduct research under controlled circumstances. Indeed, the center is the first genuine laboratory for applying social science methods to the empirical evaluation of legal institutions and procedures.

Finally, an unusual minor feature of Duke is the degree program for the Master of Legal Studies. This is a one-year program that serves to initiate the student to law study; it is not essentially different from the usual first year of the professional degree program. Only a few mature students having established careers in other fields are admitted to this program. Such students are expected to enrich the professional and intellectual community of the school with the diversity of their experience. The program symbolizes the openness of the Law School and the willingness of the faculty to encourage interests in law by persons outside the legal profession.

This network of ties makes Duke as thoroughly integrated in its intellectual life as any American law school. The pursuit of professional aims at Duke need not be constricted by intellectual parochialism, even if there can be no assurance that every student will exploit fully the opportunities for enlarged vision that the Duke Law curriculum affords.

## The International Dimension

The Law School is an institution of considerable international proportion. In part, this simply reflects the interests of the present regular law faculty, which are as international as those of any law faculty. Thus, among the thirty-one persons holding full-time professional appointments primarily in law, are scholars whose *primary* interests include the law of the sea, taxation of international transactions, comparative administrative law, comparative public law of ethnic group relations, and comparative and international insurance law. Several others regularly study the comparative dimensions of such fields as securities regulation and intellectual property. Still others maintain international careers as experts in fields of American law; thus Duke law faculty have taught or lectured to international audiences in as many as forty countries in the most recent five years. The extent of this international interest of the faculty is distinctive, although not unique.

Because of this high level of faculty interest, the Law School has been especially receptive to international faculty visitors. Regular ties have now been established with professors who are recurring visitors from Brussels, Oxford, and Tokyo, as well as with a recent Duke law alumnus beginning in 1988 his career as a law professor in China. In addition, recent years have brought visitors from Alberta, Berne, Copenhagen, Dalhousie, Gujarat, Hamburg, Kyoto, Monash, Munich, Munster, Natal, Otago, Queen's, Osaka Prefecture, People's, Ramat-Gan, Sydney, Tessaalonika, Tsuru, and York. Despite the congestion of the law building, the school has tried to welcome international scholars and, when language facility permits, to bring them into contact with Duke law students as well as faculty. In this way, the curriculum is enriched each year with a few special offerings, sometimes narrow in focus, but often offering unusual insights into the nature and uses of law.

In addition to this influx of international faculty, Duke has also reached out to international students. About twenty-five foreign lawyers are admitted each year to the program leading to the Master of Laws degree. On rare occasion, one of these students is encouraged to remain for a doctorate. Duke is distinctive in the degree to which these students are integrated into the community of American students. There is no special curriculum for international students, and each foreign lawyer is required to take at least one of the regular first-year courses, often in one of the smaller sections where social and professional interaction is most likely to occur.

The entering class of J.D. candidates includes a number of international students. Each year several come from the People's Republic of China. They reflect a special initiative by the Law School to assist in the development of the legal system and legal profession of

China. The People's Republic students usually enter with law degrees from some of the most prestigious universities in China. Exchange programs with these institutions enable Duke J.D. students with a special interest in China and some facility with the language to study in Beijing and Shanghai. In addition to China, international students in the J.D. program have come from countries as disparate as England, Japan, Korea, Malaysia, Panama, Poland, Tanzania, Taiwan, and West Germany.

In 1985, the law faculty established a unique joint degree program internal to the Law School which aims to encourage students to exploit the distinctive international dimension of the school. Along with the joint degree programs with the Graduate School, the program leading to the Master of Laws (International and Comparative Law) depends on summer entrance to law study to enable students to complete a second degree in the standard three academic years supplemented by the one summer semester plus a month in the program in Denmark. Students in this program devote a substantial part of their first year to the study of foreign and international law, thus materially broadening their perspective on the standard first-year law material. Like the joint degree program offered with the Graduate School, this degree program is not presented as an assurance of advantage in the pursuit of a particular career in law, but as a means to broadened perspective and deepened capacity for judgment.

Since 1986, the Law School has sponsored a one-month summer program in Denmark in cooperation with the Law Faculty of the University of Copenhagen. The Duke in Denmark Summer Institute in Transnational Law is designed for students interested in comparative and international law. The courses are jointly taught by American and European or Asian faculty at a well situated conference center in Holte, a suburb of Copenhagen. The program is an accredited part of the Duke Law School curriculum, and J.D./LL.M. students are expected to attend the program as a compulsory part of their curriculum. Approximately a third of the Duke in Denmark students are Americans, and the remainder are from a variety of countries throughout the world. Students attending the program may obtain up to six semester hours of credit.

## Conclusions

In 1986, the Law School was reviewed by a distinguished committee serving the University Board of Trustees, and also by an eminent team appointed by the American Bar Association and the Association of American Law Schools. All of these inspectors of the school commented adversely on the plant as being too modest in appearance and too small for the volume of activity housed within. All also commented especially on the three secondary faculties of the Law School: the adjunct clinical faculty of lawyers and judges, the joint faculty of scholars primarily working in other disciplines, and the international visiting faculty. The shared comment was that each of these groups was extraordinary in what it was able to bring to Duke law students, and each was wisely balanced by the presence of the others. At least one observer noted the synergistic effect—the Law School is more than the sum of its parts.

The assembly of these secondary faculties is itself an unusual attainment of the regular faculty. What their collective presence manifests is the self-confidence of an institution reaching out to the legal profession, to the academic profession, and to the international legal community for the best that these constituencies have to offer to those engaged in the study and illumination of law. Together with the supportive student environment, and a talented and dedicated faculty willing to innovate, they provide a truly distinctive opportunity for the study of law.



*Law Faculty*



Presented here are faculty holding academic appointments in the Law School extending beyond one year.

**Jean Taylor Adams, Senior Lecturer in Law**

B.A. 1972, M.Ed. 1975, J.D. 1979, Duke University. Ms. Adams spent her early years in the Philadelphia area. Prior to entering law school, she was employed by Duke University in the estate planning division of the Development Office and as an admissions counselor. She compiled an unusually distinguished academic record in law school, where she also served as editor-in-chief of the *Duke Law Journal*. She began her professional career in law in 1980 at Duke, teaching in the area of estate planning, taxation, and, more recently, property. She also served as associate dean from 1983 to 1986.



**Patrick S. Atiyah, Visiting Professor of Law**

B.A. 1953, B.C.L. 1954, M.A. 1957, D.C.L. 1974, Oxford University. A native of Great Britain, Professor Atiyah has pursued an academic career that has taken him successively to the University of Khartoum, the Australian National University, the University of Warwick, and back to Oxford, where he is presently professor of English law. He has also taught at Harvard. His numerous books have won wide critical acclaim; the most recent, *Form and Substance in Anglo-American Law*, and *Pragmatism and Theory in English Law* were published in 1987. He returned for his fourth visit to Duke in the spring of 1989 to teach Comparative Law: The English and American Traditions.



**Katharine Tiffany Bartlett, Professor of Law**

B.A. 1968, Wheaton College; M.A. 1969, Harvard University; J.D. 1975, University of California, Berkeley. A native of Connecticut, Professor Bartlett served for three years as a secondary school teacher in that state before entering law school. She commenced her legal career with a judicial clerkship in the Supreme Court of California. From 1976 to 1979, she worked as a staff attorney at the Legal Aid Society of Alameda County in Oakland, California, concentrating on law reform and major impact litigation. She began teaching at Duke in 1979. Her special areas of interest include child advocacy, family law, and feminist legal theory. She will be on leave in the spring of 1990, teaching at Boston University School of Law.



**Lawrence G. Baxter, Professor of Law**

B.Comm. 1973, LL.B. 1975, Ph.D. 1985, University of Natal; LL.M. 1977, Dip.Leg.Stud. 1978, Cambridge University. A native of South Africa, Professor Baxter practiced law before taking an appointment in 1978 at the University of Natal where, in 1982, he was promoted to professor of law. In 1984 he was also a visiting professor at the University of Cape Town. In the fall of 1988 he was a visiting professor at Wolfson College, Cambridge, England, and in May and June 1990 he will be adjunct professor of law at Bond University, Queensland, Australia. He has served as an adjudicator on the Natal Midlands Licensing Appeal Board, is a consultant to the Administrative Conference of the United States, a member of the North Carolina state bar, and a member of the North Carolina Bar Association's Task Force on Administrative Law and Procedure. Professor Baxter has published a number of works in administrative, banking, constitutional, and comparative law. Among these is a treatise, *Administrative Law*, published in 1984. He came to Duke in 1985.



**Sara Sun Beale, Professor of Law**

B.A. 1971, J.D. 1974, University of Michigan. A native of Toledo, Ohio, Professor Beale's experience includes a judicial clerkship on the United States Court of Appeals, as well as a year in private practice in Detroit, Michigan. In 1976 she joined the United States Department of Justice, where she served one year in the Office of Legal Counsel, and two years in the Office of the Solicitor General. She began her teaching career at Duke in 1979 and is the coauthor of *Grand Jury Law and Practice* (1986). Her principal academic interests are in the field of criminal law and procedure.



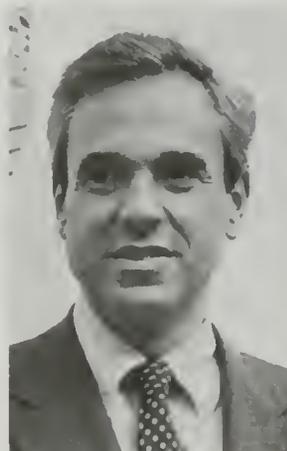
**Herbert L. Bernstein, Professor of Law**

LL.B. 1953, Dr. jur. 1962, Hamburg University, Germany; J.D. 1967, University of Michigan. A native of Germany, Professor Bernstein practiced as a junior lawyer until 1958 and as a regular member of the bar thereafter. Simultaneously, he was a research and teaching assistant at Hamburg University from 1956 to 1960. Since 1958 he has also been affiliated with the Max-Planck Institute of Foreign and Private International Law. He taught at the University of California from 1967 to 1971; then returned to Hamburg University as professor of law. After a previous visit, he came to Duke from Hamburg in 1984. His teaching includes contracts, comparative law, and insurance. He is the author of numerous books and articles on diverse subjects in the fields of international law, conflict of laws, insurance, and business law.



**H. Keith H. Brodie, James B. Duke Professor of Psychiatry and Law**

A.B. 1961, Princeton University; M.D. 1965, Columbia University. Dr. Brodie served at hospitals in New Orleans and New York City before becoming a clinical associate with the National Institute of Mental Health in 1968. In 1970, he joined the medical faculty of Stanford University. He was awarded a first prize in 1971 for research by the American Psychological Association. Dr. Brodie is a member of the Institute of Medicine of the National Academy of Sciences and he has chaired IOM's Board of Mental Health and Behavioral Medicine. He came to Duke in 1974 as professor and chairman of the Department of Psychiatry and director of Psychiatric Services at Duke University Medical Center. He has also served as president of the American Psychiatric Association. His most recent book is *Modern Clinical Psychiatry*, published in 1982. He was first appointed to the law faculty in 1982. He presently serves as president of Duke University.



**Paul D. Carrington, Harry R. Chadwick, Sr. Professor of Law**

B.A. 1952, University of Texas; LL.B. 1955, Harvard University. Professor Carrington is a native of Dallas, Texas. His professional experience includes a brief stint in private practice in Dallas and in a military law office, as well as occasional work for the American Civil Liberties Union and the American Association of University Professors. Since his teaching career began in 1957, he has taught at more than a dozen law schools, before serving as professor of law and dean at Duke from 1978 to 1988. He has been active in judicial law reform efforts, particularly in regard to appellate courts and procedure. He has published in the fields of civil procedure, education law, and legal education. He teaches civil procedure and is reporter for the Committee of the Judicial Conference of the United States which advises the Conference and the Supreme Court on changes in the Federal Rules of Civil Procedure.



**George C. Christie, James B. Duke Professor of Law**

A.B. 1955, J.D. 1957, Columbia University; S.J.D. 1966, Harvard University. A native of New York City, Professor Christie was editor-in-chief of the *Columbia Law Review*. He commenced his legal career with private practice in Washington, D.C. In 1960-61, he was a Ford Fellow at Harvard Law School; and in 1961-62, he was a Fulbright Scholar at Cambridge University, where he earned a Diploma in International Law. He then joined the law faculty of the University of Minnesota, where he taught for almost four years. In 1966, he returned to Washington to serve as Assistant General Counsel for the Near East and South Asia of the Agency for International Development before coming in 1967 to Duke. His chief academic interests are in the areas of torts and jurisprudence, in both of which he has published widely. He is the editor of a casebook in jurisprudence published in 1973 and one on torts published in 1983. His monograph, *Law, Norms and Authority*, was published in 1982. He has been a visiting professor at George Washington University, the Universities of Michigan, Florida, Otago in New Zealand, Witwatersrand in South Africa, and Fudan University in Shanghai, and a fellow of the National Humanities Center.



**James D. Cox, Professor of Law**

B.S. 1966, Arizona State University; J.D. 1969, University of California, Hastings College of the Law; LL.M. 1971, Harvard University. Professor Cox is a native of Ellinwood, Kansas. He entered law teaching as a teaching fellow at Boston University, and has since taught at the University of San Francisco, Stanford University, and the University of California, Hastings College of the Law, before coming to Duke in 1979. He has focused his writing and teaching in the areas of corporate and securities law. Professor Cox is the author of a book on the utilization of financial information in the regulation of public corporations. He spent the spring semester of 1989 as a Senior Fulbright Research Fellow at the University of Sydney, Australia.



**Jerome M. Culp, Jr., Professor of Law**

A.B. 1972, University of Chicago; A.M. 1974, J.D. 1978, Harvard University. Professor Culp is a native of Clarksville, Pennsylvania. While in law school he served as senior editor of the *Harvard Civil Rights-Civil Liberties Law Review*. His experience includes a research fellowship with the Rockefeller Foundation and a judicial clerkship in the U.S. Court of Appeals. He came to Duke from Rutgers in 1985, and in 1987 was a Distinguished Scholar at the Joint Center for Political Studies in Washington, D.C. His principal work to date is in the area of employment discrimination and economic analysis of law. He teaches torts and employment discrimination, and will be on leave for the fall semester 1989 teaching at the University of Michigan Law School.





**Richard A. Danner, Professor of Legal Research**

B.A. 1969, M.S. 1975, J.D. 1979, University of Wisconsin-Madison. Professor Danner is a native of Wisconsin, who served as environmental law librarian at the University of Wisconsin-Madison, prior to coming to Duke as associate law librarian in 1979. He became director of the Law Library in 1981. He teaches a seminar in legislation, as well as legal research and writing. He has published articles in journals of law, law librarianship, and library science; his book, *Legal Research in Wisconsin*, was published in 1980. Since 1984, he has been editor of the American Association of Law Libraries' *Law Library Journal*. He is active in the affairs of AALL, AALS, and served in 1985-86 as president of the southeastern chapter of AALL. In 1989-90, he is president of the AALL.



**Walter E. Dellinger III, Professor of Law**

A.B. 1963, University of North Carolina; LL.B. 1966, Yale University. Professor Dellinger is a native of Charlotte, North Carolina. He taught political and civil rights at the University of Mississippi from 1966 to 1968. In 1968-69, he served as a judicial clerk in the Supreme Court of the United States. He joined the Duke law faculty in 1969, serving as associate dean from 1974 to 1976 and as acting dean from 1976 to 1978. He has also taught at the University of Southern California, the University of Michigan, and the Catholic University of Leuven, Belgium. He teaches constitutional law and history, and in 1988-89 was on leave as a fellow of the National Humanities Center.



**Deborah A. DeMott, Professor of Law**

B.A. 1970, Swarthmore College; J.D. 1973, New York University. Professor DeMott spent her early years in DuBois, Pennsylvania. She served as articles editor of the *New York University Law Review*. She began her professional career with a judicial clerkship in a federal court in New York City, and later practiced with a large law firm in that city, until she joined the Duke law faculty in 1975. She has also taught at the Universities of Texas, Colorado, and the Hastings College of Law of the University of California. In 1986 she was a Fulbright Senior Scholar at Sydney and Monash Universities in Australia. She is a member of the Art Law Drafting Committee of the North Carolina General Statutes Commission. Her treatise, *Shareholder Derivative Actions*, was published in 1987. Her other writing concerns corporate law, takeovers and acquisitions, and fiduciary obligation.



**Robinson O. Everett, Professor of Law**

A. B. 1947, J.D. 1950, Harvard University; LL. M. 1959, Duke University. Professor Everett is a native of Durham, North Carolina. He served for several years as a legal officer in the Air Force and as a commissioner of the United States Court of Military Appeals. He returned to Durham to enter a general practice, which he continued until 1980 when he ascended to the bench of the United States Court of Military Appeals as chief judge. From 1961 to 1964, he served as counsel to the Subcommittee on Constitutional Rights of the United States Senate Judiciary Committee. He has been active in the affairs of the North Carolina Bar and of the community of Durham. He has long served as a commissioner on Uniform State Laws and has been active in various law reform efforts. He has published on many legal topics, most notably military justice and local government law. His teaching at Duke began as early as 1950. He was elected to regular membership on the faculty in 1967. He is on part-time leave.



**Peter G. Fish, Professor of Political Science and Law**

A. B. 1960, Princeton University; A. M. 1965, Ph. D. 1968, The Johns Hopkins University. Professor Fish has served as guest scholar at the Brookings Institution and taught at Oberlin and Princeton before coming to Duke in 1969. He is author of *The Politics of Federal Judicial Administration* (1973) and *The Office of the Chief Justice* (1984). From 1977-79 Professor Fish served as a lay member of the United States Circuit Judge Nomination Commission, Panel for the Fourth Circuit. He teaches a seminar on the politics of judicial administration and a research tutorial on the development of the United States Courts of the Fourth Circuit: 1789-1958.



**Stanley E. Fish, Professor of English and Law**

B. A. 1959, University of Pennsylvania; M. A. 1960, Ph. D. 1962, Yale University. Professor Fish taught at the University of California, the University of Southern California, and The Johns Hopkins University before coming to Duke in 1985. His principal field has been the study of Milton; this interest evolved to produce important work on literary theory and his widely noted 1980 book, *Is There A Text in This Class?* Most recently he contributed to the application of literary theory to law and has written for legal publications. In the spring of 1989 he was in residence at the Humanities Research Institute of the University of California at Irvine. He teaches a seminar on interpretive theory which is presented to students of the humanities as well as law.



**Joel L. Fleishman**, *Professor of Law and Public Policy Sciences*

A. B. 1955, J. D. 1959, M. A. (Drama) 1959, University of North Carolina; LL.M. 1960, Yale University. Professor Fleishman is a native of Fayetteville, North Carolina. He began his career in 1960 as assistant to the director of the Walter E. Meyer Research Institute of Law at Yale. From 1961 to 1965, he served as legal assistant to the governor of North Carolina. He then returned to Yale, first as director of the Yale Summer High School, and then as associate provost for Urban Studies and Programs. In 1969, he became associate chairman of the Center for the Study of the City and Its Environment and associate director of the Institute of Social Science at Yale. In 1971, he came to Duke as a member of the law faculty and as director of the Institute of Policy Sciences and Public Affairs. He is also senior vice-president of the University, and chairman of the Capital Campaign. His principal writings deal with legal regulation and financing of political activities. He is on leave of absence, devoting himself to University administration.



**John Hope Franklin**, *Professor of Legal History*

A. B. 1935, Fisk University; M. A. 1936, Ph. D. 1941, Harvard University. A native of Oklahoma, Professor Franklin taught at Fisk University, North Carolina Central University, Howard University, Brooklyn College, and the University of Chicago, where he was the John Matthews Manly Distinguished Service Professor, before coming to Duke in 1982 as the James B. Duke Professor of History. He is now emeritus in history and continues his teaching in the Law School. In the spring of 1989, he was the Herman Phleger Visiting Professor at Stanford Law School. He has served as president of several scholarly organizations, including the United Chapters of Phi Beta Kappa and the American Historical Association; as Pitt Professor of American History and Institutions at Cambridge University; and as a member of many national commissions and delegations, including the National Council on the Humanities and UNESCO. He has published several books, among which are *The Free Negro in North Carolina* (1943), *From Slavery to Freedom: A History of Negro Americans* (6th ed., 1987), *Reconstruction after the Civil War* (1961), *The Emancipation Proclamation* (1963), *A Southern Odyssey: Travelers in the Antebellum North* (1976), *Racial Equality in America* (1976), and *George Washington Williams: A Biography* (1985) in addition to numerous articles in professional journals.



**Koichiro Fujikura**, *Visiting Professor of Law*

B. A. 1957, Doshisha University; B. A. 1961, Amherst College; LL.M. 1962, Northwestern University; LL.M. 1963, Harvard University. Professor Fujikura returned to Japan after his four years of study in the United States, where he joined the faculty of Doshisha, serving as dean of the law faculty there before moving to the University of Tokyo in 1981; he remains professor of law at Tokyo. He has also taught at California, Harvard, Hawaii, and Michigan. Among his writings is a book published in English, *Environmental Law in Japan* (1981). He made his second visit to Duke in the fall of 1988 to teach Japanese Environmental Law and Dispute Resolution. It is anticipated that his instruction will be presented again in 1990.



**Pamela B. Gann, Professor of Law**

B.A. 1970, University of North Carolina; J.D. 1973, Duke University. A native of Monroe, North Carolina, Professor Gann was articles editor of the *Duke Law Journal*. She practiced with private firms in Atlanta and Charlotte before returning to Duke to teach in 1975. She has also taught at Washington University and the Universities of Michigan, Virginia, Colorado, and San Diego. She is the coeditor of a 1989 casebook on corporate taxation. Her writing is primarily in the areas of taxation and international investment. In 1984, her work was supported by the Council on Foreign Relations, of which she is now a member. She began service as dean of the Law School in 1988.



**Gao Xi-Qing, Visiting Assistant Professor of Law**

B.A. 1978, M.A., 1981, Beijing Institute of Foreign Trade; J.D. 1986, Duke University. A native of Xian, China, Mr. Gao served as a lecturer in international trade law in Beijing and as a law clerk in the United States before entering the Law School in 1983. Since graduation, he has practiced with a large New York law firm and returned in 1988 to the Beijing Institute of Foreign Trade as an assistant professor of law. In the spring of 1988 he taught a seminar in International Trade Transactions with China at Duke; it is anticipated that his instruction will be presented again in the fall of 1989.



**Claire M. Germain, Senior Lecturer in Comparative Law and Legal Research**

B.A. 1971, LL.B. 1974, University of Paris; M.C.L. 1975, Louisiana State University; M.L.L. 1977, University of Denver. A native of France, Ms. Germain has served as a research associate in French and German law at Louisiana State University, as a research assistant at the Organization for Economic Cooperation and Development in Paris, and as a guest librarian and research fellow at the Max-Planck Institute for Foreign and Private International Law in Hamburg, West Germany. At Duke since 1977, she is now the assistant librarian. Her book, *Guide to Foreign Legal Materials: French*, was published in 1985. She frequently writes on law librarianship and foreign and comparative law. She teaches legal research and a seminar in civil law.



**Martin P. Golding, Professor of Philosophy and Law**

B.A. 1949, M.A. 1952, University of California, Los Angeles; Ph.D. 1959, Columbia University. A native of New York City, Professor Golding taught at Columbia University from 1957 to 1970 and at the John Jay College of Criminal Justice of the City University of New York from 1970 to 1976 before coming to Duke in 1976 as professor and chairman of the Department of Philosophy, where he remains as professor. He has also taught at New York University, Bar-Ilan University in Israel, and the Universities of California (both Berkeley and Los Angeles), Southern California, and Colorado. His writing includes three books, *The Nature of Law* (1966), *Philosophy of Law* (1975; Japanese translation 1985; Chinese translation 1988), and *Legal Reasoning* (1984), and numerous articles on jurisprudence and ethics. Professor Golding was Senior Visiting Fulbright Lecturer in Australia and has been a fellow of the National Humanities Center.



**Paul H. Haagen, Associate Professor of Law**

B.A. 1972, Haverford College; B.A. 1974, M.A. 1976, Oxford; M.A. 1976, Ph.D. 1986, Princeton; J.D. 1982, Yale. Professor Haagen was born in Lancaster, Pennsylvania and raised in Connecticut. After graduating from college, he studied history first at Oxford as a Rhodes Scholar, and later at Princeton, where he also taught. In law school, he was an editor of *Yale Studies in World Public Order* and editor-in-chief of the *Yale Law and Policy Review*. Since law school, he has clerked on the United States Court of Appeals and then practiced law in Philadelphia for two years before coming to Duke in 1985. His principal academic interests are legal history and international law.



**Guy Haarscher, Visiting Professor of Law**

J.D. 1971; Ph.D. 1977, Universite Libre de Bruxelles. Professor Haarscher is a native of Brussels and has lived and worked in that city all of his life. He is professor of law and director of the Center of the Philosophy of Law at his university. He has also taught at the Australian National University. His most recent book is *Philosophie des Droits de L'homme* (1987). He made his second visit to Duke in the fall of 1987 to teach his course, Law and Political Philosophy, which will be offered again in the fall of 1989.



**Stanley Hauerwas, *Professor of Divinity and Law***

B.A. 1962, Southwestern University; B.D. 1965, M.A., M.Phil., Ph.D. 1968, Yale University. Prior to coming to Duke Divinity School in 1984, Professor Hauerwas taught at Augustana College from 1968 to 1970 and at the University of Notre Dame from 1970 to 1984. While at Notre Dame he was a visiting professor at a number of other American universities. At Duke, Professor Hauerwas is a professor in the Divinity School and director of graduate studies in the Department of Religion. He began his association with the Law School in 1988. His primary research interests are in the field of ethics.



**Clark C. Havighurst, *William Neal Reynolds Professor of Law***

A.B. 1955, Princeton University; J.D. 1958, Northwestern University. Professor Havighurst is a native of Evanston, Illinois. He spent two years in military service, one year as a research associate at Duke, and three years in private law practice in New York City before beginning his teaching career at Duke in 1964. Professor Havighurst was for five years the editor of *Law and Contemporary Problems*. In addition to teaching antitrust law, he has a special academic interest in the field of health care law and in national health policy. His book, *Deregulating the Health Care Industry*, was published in 1982, and his casebook, *Health Care Law and Policy*, appeared in 1988. Professor Havighurst is director of the Law School's Program on Legal Issues in Health Care, and he has served as scholar in residence at, and is a member of, the Institute of Medicine of the National Academy of Sciences. He has also been a resident consultant to the Federal Trade Commission in Washington, D.C., and is an adjunct scholar in Law and Health Policy of the American Enterprise Institute. He has also taught at Stanford, Northwestern, Michigan, and William and Mary and is on leave in 1989-90.



**Cynthia B. Herrup, *Associate Professor of History and Law***

B.S.J. 1972, Northwestern University; M.A. 1975, Loyola University (Chicago); Ph.D. 1982, Northwestern University. Professor Herrup is a native of Miami, Florida. Prior to coming to the Department of History at Duke in 1984, Professor Herrup taught for three years at the University of Michigan, Ann Arbor. From 1985 to 1988 Professor Herrup had a concurrent appointment at Duke Law School as lecturer in legal history, teaching courses in the history of English criminal law. In 1988, Professor Herrup was appointed associate professor of history and law in the Law School. Her principal research interests are in the area of criminal law in preindustrial societies and the social and intellectual history of ideas of crime and punishment. She will continue to teach history of English criminal law.



**Donald L. Horowitz, Charles S. Murphy Professor of Law**

A.B. 1959, LL.B. 1961, Syracuse University; LL.M. 1962, M.A. 1965, Ph.D. 1967, Harvard University. A native of New York City, Professor Horowitz began his professional career as a judicial clerk in the United States District Court. With the exception of a stint as a government lawyer, he has primarily been engaged in research at the Harvard University Center for International Affairs, the Council on Foreign Relations, the Brookings Institution, and the Smithsonian Institution. A recipient of a grant from the Guggenheim Foundation for work in ethnic relations, Professor Horowitz has published several books. Among them are *The Jurocracy*, a book about government lawyers, and *The Courts and Social Policy*, for which he was awarded the Louis Brownlow Prize of the National Academy of Public Administration in 1977. His most recent book is *Ethnic Groups in Conflict* (1985). Professor Horowitz came to Duke in 1981 and has served as a fellow of the National Humanities Center. In the spring of 1988, he was a visiting fellow at Wolfson College, Cambridge. In the fall of 1988, he was a visiting professor at the University of Chicago Law School.



**David L. Lange, Professor of Law**

B.S. 1960, LL.B. 1964, University of Illinois. Professor Lange practiced law with a Chicago firm that included media enterprises among its clients. He has also had substantial professional experience in radio, television, cable, and motion picture production, and has served as a member of the Governing Committee of the ABA Forum on the Entertainment and Sports Industries. He joined the Duke law faculty in 1971, where he has since served as general editor of *Law and Contemporary Problems* and as chairman of the Center for the Study of Communications Policy. His principal academic interests lie in the areas of intellectual property, entertainment, and communications law. He is also of counsel to a law firm with an emphasis in these areas of practice.



**William E. Leuchtenburg, Professor of Legal History**

B.A. 1943, Cornell University; M.A. 1944, Ph.D. 1951, Columbia University. Professor Leuchtenburg holds the Kenan Chair in History at the University of North Carolina and previously held the DeWitt Clinton Chair at Columbia. He has also taught at Oxford University, and previously at the Law School. His field is modern American history with emphasis on the Roosevelt era; his latest book is on the legacy of Franklin Roosevelt and its impact on American presidents from Truman to Reagan. He teaches in the area of constitutional history.



**Richard C. Maxwell**, *Harry R. Chadwick, Sr. Professor Emeritus of Law*

B.S.L. 1941, LL.B. 1947, University of Minnesota; LL.D. (Hon.) California Western University. Professor Maxwell is a native of Minnesota. He started his academic career at the University of North Dakota and has been a faculty member at the University of Texas and UCLA. He was counsel to the Amerada Petroleum Corporation during the early development of the Williston Basin and served for a decade as dean of the law school at UCLA, where he was also Connell Professor of Law. He has held visiting chairs at the University of Minnesota, the University of Singapore, and the University of Colorado and was Fulbright Lecturer at Queen's University, Belfast. In 1972 he was president of the Association of American Law Schools. He is an editor of the *Oil and Gas Reporter* and most of his scholarship in recent years deals with mineral law. He has published books on social legislation, real property security transactions, and oil and gas law. He joined the Duke faculty in 1979.



**Thomas B. Metzloff**, *Associate Professor of Law*

B.A. 1976, Yale College; J.D. 1979, Harvard University. Professor Metzloff is a native of Buffalo, New York. He began his professional career with a judicial clerkship on the United States Court of Appeals, followed by a clerkship with the Supreme Court of the United States. He then practiced with a private firm in Atlanta before accepting a position at Duke in 1985. He teaches civil procedure and dispute resolution, as well as professional responsibility and a seminar on professional liability. He also serves as codirector of the Private Adjudication Center's Medical Malpractice Research Project.



**Robert P. Mosteller**, *Professor of Law*

B.A. 1970, University of North Carolina at Chapel Hill; J.D. 1975, Yale University; M.P.P. 1975, Harvard University. Professor Mosteller is a native of Vale, North Carolina. After serving as a judicial clerk, he joined the District of Columbia Public Defender Service. During seven years with the Public Defender Service, he was director of training and chief of the Trial Division. Professor Mosteller came to Duke in 1983, and is the coeditor of an evidence casebook and problem book. He teaches evidence, criminal procedure, criminal litigation, and trial practice. In July 1989 he began serving as senior associate dean for academic affairs.





**Jonathan K. Ocko, Associate Professor of Legal History**

B.A. 1966, Trinity College; M.Phil. 1971, M.A. 1972, Ph.D. 1975, Yale University. A native of New York City, Professor Ocko taught at Clark University and Wellesley College before joining the faculty of North Carolina State University in 1977. During the academic year 1978-79, he studied law at Harvard University, where he also taught Asian law. His principal scholarly efforts have been in the field of Chinese history and law. His book, *Bureaucratic Reform in Provincial China*, was published in 1982. In 1983, he was appointed to a part-time professorial position in the Law School.



**H. Jefferson Powell, Professor of Law and Divinity**

B.A. 1975, University of Wales; A.M. 1977, Duke University; M.Div. 1979, J.D. 1982, Yale University. A native of Burlington, North Carolina, Professor Powell clerked for the Honorable Sam J. Ervin III of the Fourth Circuit Court of Appeals. He began teaching at the University of Iowa in 1984 and in 1986-87 was a visiting associate professor at Yale. He returned to Duke in 1987 to complete his doctorate in theological ethics and hopes to receive that degree in 1990. Beginning in the fall of 1989, Professor Powell joins the permanent faculty of the Law and Divinity Schools. At the Law School, he teaches contracts, remedies, constitutional history, and a seminar on the theological dimensions of the law.



**Evelyn M. Pursley, Senior Lecturer in Law**

B.A. 1973, M.L.S. 1975, University of Oklahoma; J.D. 1984, Duke University. A native of Oklahoma, Ms. Pursley served as a school teacher and university librarian in that state before entering law school. While at Duke she was executive editor of *Law and Contemporary Problems*. After graduating from law school, she served as a law clerk for the United States Court of Appeals for the Fifth Circuit. She returned to Duke in 1985 as an assistant dean, and now serves as associate dean for alumni affairs. She also teaches in the clinical program.



**William Arneill Reppy, Jr., Professor of Law**

A.B. 1963, J.D. 1966, Stanford University. Professor Reppy is a native of Oxnard, California. He commenced his professional career with two judicial clerkships—one in the Supreme Court of California, followed by another in the Supreme Court of the United States. He then practiced law for three years with a private firm in Los Angeles, until joining the Duke law faculty in 1971. He has also taught at the Universities of California, Michigan, Washington, and North Carolina. His principal scholarly work is in the areas of marital property rights and conflict of laws. He is a frequent consultant to the California Law Revision Commission on community property and succession law. He does pro bono legal work for the humane and animal rights movements.



**Horace B. Robertson, Jr., Professor of Law**

B.S. 1945, U.S. Naval Academy; J.D. 1953, Georgetown University; M.S. 1968, George Washington University. Professor Robertson is a native of Kannapolis, North Carolina. After five years as a line officer in the Navy, he was assigned to law study. After achieving a distinguished record, including service as editor-in-chief of the *Georgetown Law Journal*, he returned to active duty as a judge advocate, rising ultimately to be the highest ranking legal officer in the Navy in 1975. While on active duty, he served as a member of the United States Delegation to the United Nations Law of the Sea Conference in 1958 and to the United Nations Seabeds Committee's Preparatory Session in 1973. He joined the Duke law faculty in 1976. His primary teaching interests are in the fields of international law and admiralty. He served as senior associate dean from 1986 to 1989.



**Thomas D. Rowe, Jr., Professor of Law**

B.A. 1964, Yale University; M.Phil. 1967, Oxford University; J.D. 1970, Harvard University. A native of Ann Arbor, Michigan, Professor Rowe achieved preeminent academic records both as an undergraduate and as a law student; in the interim, he was also a Rhodes Scholar. He commenced his professional career as a law clerk in the Supreme Court of the United States. He served for one and one-half years as assistant counsel to a subcommittee of the United States Senate and then practiced law with a private firm in Washington, D.C. He joined the Duke law faculty in 1975 and served as associate dean from 1981 to 1984. He has also taught at Georgetown and Michigan. He has written in the fields of civil procedure, judicial remedies, and constitutional law.



**Richard L. Schmalbeck, Professor of Law**

A.B. 1970, J.D. 1975, University of Chicago. Professor Schmalbeck is a native of Chicago, where he began his professional career as an economist with the Illinois Housing Development Authority in 1971. In 1973, he returned to law school at the University of Chicago, where he served as associate editor of the *University of Chicago Law Review*. Following law school graduation, he practiced law briefly in Columbus, Ohio, before accepting a position in Washington in 1976 as a special assistant to the associate director of the Office of Management and Budget. In 1977, he returned to private practice with a law firm in Washington, specializing in federal income tax. He began his teaching career at Duke in 1980, where his focus is on the fields of federal taxation and law and economics. He is on leave in the fall of 1989, teaching at Northwestern University School of Law.



**Christopher H. Schroeder, Professor of Law**

B.A. 1968, Princeton University; M.Div. 1971, Yale University; J.D. 1974, University of California. Professor Schroeder is a native of Saginaw, Michigan. He served as editor-in-chief of the *California Law Review*. He practiced law with a San Francisco firm for two years before organizing a smaller firm in that city, where he engaged in environmental litigation in addition to a general litigation practice. He joined the Duke law faculty in 1979, and has also taught at UCLA. He teaches in the fields of environmental law and property. He will be on leave for the spring semester of 1990, teaching at Boston University School of Law.



**Melvin G. Shimm, Professor of Law**

A.B. 1947, Columbia University; LL.B. 1950, Yale University. Professor Shimm is a native of New York City and served three years with the Army. He practiced law privately in New York City from 1950 to 1951 and as an attorney for the Wage Stabilization Board in Washington, D.C., from 1951 to 1952 before entering law teaching as a Bigelow Fellow at the University of Chicago from 1952 to 1953. He has been at Duke since 1953, serving as associate dean from 1978 to 1983. He has also taught at New York University and the Universities of Southern California, North Carolina, Michigan, and Texas. He has been heavily invested in the Law School's publication program, editing *Law and Contemporary Problems*, the *Journal of Legal Education*, and the American sections of the *Business Law Review* and the *Journal of Business Law*; and organizing and serving first as faculty editor and then as faculty adviser of the *Duke Law Journal*. He has also served as senior consultant with The Brookings Institution, as director of the Association of American Law Schools' Orientation Program in American Law, as director of the Duke University Institute in Transnational Law, and as a member of the North Carolina General Statutes Commission. His teaching interests lie primarily in the commercial law areas.



**Martin J. Stone, Assistant Professor of Law**

B.A. 1982, Brandeis University; J.D. 1985, Yale University; B.Phil. 1988, Oxford University. Professor Stone began his undergraduate education at the University of California, Berkeley, transferring to Brandeis after two years. Following completion of his J.D. in 1985, Professor Stone was a Marshall Scholar at Balliol College, Oxford University where he completed the B.Phil. in philosophy in 1988. At Oxford his research interests centered on Wittgenstein, philosophical logic, and political philosophy.



**Gwynn T. Swinson, Senior Lecturer in Law**

B.A. 1973, Antioch College; J.D. 1976, Antioch School of Law; LL.M. 1986, Duke University. A native of North Carolina, Ms. Swinson has had experience in representing the interests of the federal government in civil matters. Appointed assistant branch director, Commercial Litigation Branch, Civil Division, U.S. Department of Justice in 1980, she previously served as trial attorney for the department's commercial litigation and federal programs branches. In addition to her responsibilities as associate dean for admissions and student affairs, she teaches courses in trial practice and professional responsibility. She is active in the affairs of the Law School Admission Council and was recently appointed to its Board of Trustees.



**William W. Van Alstyne, William R. Perkins and Thomas C. Perkins Professor of Law**

B.A. 1955, University of Southern California; J.D. 1958, Stanford University; LL.D. (Hon.) 1976, Wake Forest University; LL.D. (Hon.) 1979, College of William and Mary. A native of California, Professor Van Alstyne was professionally employed first by the California Department of Justice and then by the United States Department of Justice. He began his teaching career at Ohio State University in 1959, coming to Duke in 1965. He has taught at a number of other law schools, including Stanford, the University of California (at Berkeley and at Los Angeles), the Universities of Chicago, Illinois, and Pennsylvania, and in Europe, China, and Latin America. He studied at the Hague Academy of International Law in 1961 and was a senior fellow at Yale in 1964-65. He has been especially active in the American Association of University Professors, serving as president in 1975-76. He is known for his writing and his speaking on the subject of constitutional law, appearing regularly in House and Senate proceedings and in briefs for the U.S. Supreme Court.



**Neil J. Vidmar, Professor of Social Science and Law**

A.B. 1962, MacMurray College; M.A. 1965, Ph.D. 1967, University of Illinois. Professor Vidmar is a native of Illinois, but moved to Canada in 1967. Since completing his graduate work, he has taught at the University of Western Ontario, except for leaves at the Yale Law School, the Batelle Research Center in Seattle, and Osgoode Hall Law School at York University, Toronto. His principal work has been in the application of social science methods to the study of legal institutions; he is a trustee of the Law and Society Association and a fellow of the American Psychological Association. He has served as a consultant to a number of legal and scientific organizations in Canada and the United States. His most recent book, coauthored with V. Hans, is *Judging the Jury* (1986). He offers instruction in applications of social science to problems of law, the psychology of the litigation process, and negotiation. He also serves the Private Adjudication Center as vice-president for research. He will be on leave at the University of Western Ontario for the 1989-90 academic year.



**John C. Weistart, Professor of Law**

A.B. 1965, Illinois Wesleyan University; J.D. 1968, Duke University; LL.D. (Hon.) 1981, Illinois Wesleyan University. Professor Weistart was editor-in-chief of the *Duke Law Journal*. He served for a year as a judicial clerk on the Supreme Court of Illinois before joining the Duke law faculty in 1969. He served for three years as editor of *Law and Contemporary Problems* and as American editor of the *Journal of Business Law*, and is a member of the American Law Institute. He has also taught at the Universities of California at Los Angeles, Virginia, Harvard, and Michigan. He is known for his writing in the field of commercial law, and has served as a consultant to the Federal Trade Commission and the Federal Reserve Board. He is also a frequent commentator on issues in the athletics industry.



## Visiting Faculty

- Paal B. Boerresen, *Visiting Scholar in Residence (Agder College, Norway)*
- Donald A. Dripps, *Visiting Professor of Law (University of Illinois)*
- Robert W. Hillman, *Visiting Professor of Law (University of California at Davis)*
- Ruth Lapidoth, *Visiting Professor of Law (Hebrew University of Jerusalem)*
- Percy R. Luney, Jr., *Visiting Associate Professor of Japanese Law (North Carolina Central University)*
- John A. Usher, *Visiting Professor of Law (University of Exeter, England)*
- Larry D. Ward, *Visiting Professor of Law (University of Iowa)*
- Zhu Wenying, *Visiting Scholar in Residence (Chinese Academy of Social Sciences)*

## Extended Faculty

- Charles L. Becton, *Senior Lecturer in Law*
- Donald H. Beskind, *Senior Lecturer in Law*
- Jennifer M. Dibble, *Lecturer in Law*
- Harry T. Edwards, *Senior Lecturer in Law*
- Sam J. Ervin III, *Senior Lecturer in Law*
- Donald M. Etheridge, Jr., *Senior Lecturer in Law*
- Daniel M. Friedman, *Senior Lecturer in Law*

John J. Gibbons, *Senior Lecturer in Law*  
Robert M. Hart, *Lecturer in Law*  
Betty Hertel, *Instructor in Legal Research*  
Kenneth J. Hirsh, *Instructor in Legal Research*  
F. William Hutchinson, *Senior Lecturer in Law*  
Sally C. Johnson, *Senior Lecturer in Psychiatry and Law*  
Sandra L. Johnson, *Lecturer in Law*  
Elizabeth F. Kuniholm, *Lecturer in Law*  
Susan H. Lewis, *Senior Lecturer in Law*  
Carolyn McAllaster, *Lecturer in Law*  
Michael J. Meurer, *Lecturer in Law*  
Abner J. Mikva, *Senior Lecturer in Law*  
James L. Oakes, *Senior Lecturer in Law*  
J. Dickson Phillips, *Senior Lecturer in Law*  
Alvin B. Rubin, *Senior Lecturer in Law*  
David S. Rudolf, *Senior Lecturer in Law*  
Allen G. Siegel, *Senior Lecturer in Law*  
Janet Sinder, *Instructor in Legal Research*



*Admissions*





The admissions process for the typical law school applicant is at best onerous. The Law School is aware of the difficulties and uncertainties faced by applicants, and strives to treat each applicant with fairness and candor. The following description of the admissions process at Duke is presented with that object in mind.

## **Admissions Standards**

At Duke, as at many law schools, the three most important criteria, in the order of their importance, are the Law School Admission Test (LSAT) score, the undergraduate grade point average (GPA), and the undergraduate institution attended.

Although reliance on purely academic criteria is appropriate in making some decisions, particularly those involving candidates either clearly admissible or clearly inadmissible, the majority of applications fall between these extremes. For these applications, Duke will give careful consideration to more subjective factors such as proven capacity for leadership, dedication to community service, excellence in a particular field, motivation, graduate study in another discipline, work experience, extracurricular activities, and personal and character information provided in letters of recommendation. Also, in interpreting the applicant's GPA, it is often necessary to make judgments regarding the strength of the course of study pursued and the significance of class rank or the progression of grades.

Although no quotas of any kind are employed in the admissions process, the Law School does make a conscious effort to achieve a broad diversity in each entering class in terms of general background, geography, and undergraduate institutions represented. An individual student may be selected not only for his or her marked potential for academic success, but also because application materials indicate that he or she can bring to Duke unique personal qualities or talents that will enhance the overall character of the entering class.

Duke has a faculty-initiated affirmative action plan for minority admissions, and special care is taken in evaluating applications from members of minority groups who traditionally have not been well represented in the legal profession. On occasion, special consideration is given to children of alumni of Duke University who are qualified to do acceptable work. Female applicants are evaluated according to the same standards as male applicants, and applications from women are encouraged.

An applicant who has been graduated from an accredited college, or one who will have been graduated from an accredited college during his or her course of study at the Law School, may be admitted as a candidate for the degree of Juris Doctor (J.D.). On rare occasions, an exceptionally qualified applicant may be admitted as a candidate for the degree of Bachelor of Laws (LL.B.).

## Admission Procedures: J.D. Program

The Admissions Committee receives its authority by delegation from the law faculty and reports to the law faculty. The Committee, composed of four law professors and three law students, decides policy questions arising in the admissions process. Student members of the Committee, however, do not review individual files. All individual applications are reviewed by the Associate Dean and the Director responsible for admissions.

Each applicant is responsible for collecting and submitting, together with the school's application for admission, the following documents:

1. Completed application form obtained from Admissions Processing, Duke Law School, 3024 Pickett Road, Durham, North Carolina 27705. A recent photograph should be attached to the application.
2. The Law School Application Matching Form which is issued to each applicant taking the Law School Admission Test.
3. Three completed reference forms, one of which should be written by an appropriate academic dean at the undergraduate school last attended. A statement of the applicant's rank in class will be helpful. It is suggested that the other reference forms be written by professors who have personal knowledge of the academic performance and potential of the applicant. References compiled and submitted by an established Career Planning and Placement Office at the applicant's undergraduate school will be accepted. Applicants who have been out of school for some time may substitute letters from employers or others who are well acquainted with their personal traits and intellectual potential. These references must be returned in sealed envelopes which are provided with the application form.
4. A nonrefundable processing fee of \$55. This application fee is not waivable except in cases of extreme personal hardship.
5. Financial aid forms. All applicants are required to return these forms; those not wishing to be considered for aid may so indicate.

Applicants are strongly urged to take the Law School Admission Test (LSAT) no later than December. Registration forms and information should be procured by writing directly to Law School Admission Services (LSAS), Box 2000, Newtown, Pennsylvania 18940. Applicants who are handicapped should contact LSAS directly for information concerning special accommodations for taking the LSAT. Duke does not automatically waive the LSAT for applicants with special needs.

Applicants must arrange for the submission of transcripts from all undergraduate and graduate schools attended to the Law School Data Assembly Service (LSDAS), Box 2000, Newtown, Pennsylvania 18940.

Duke has no formal deadline for the submission of applications. Review of completed applications begins in December and continues until the class is filled. However, past experience indicates that students who apply by January 15 may have a more favorable chance of admission.

Personal interviews on campus are generally not considered in making admissions decisions and, therefore, are not required. It is Duke's assumption that the usual purpose for an interview is to provide the applicant with information about the school. Interviews may be arranged, however, if there are special circumstances that cannot be adequately described in writing or by telephone.

Each applicant extended an offer of admission will be given a reasonable amount of time to respond. Written offers of admission will be sent to admitted candidates specifying the amount of deposit and other conditions required to hold a place in the class. Only in rare cases will offers be extended prior to January 15. A waiting list is established in late spring and held open until the registration date. Offers are extended to applicants on the waiting list as withdrawals occur.

Admission to the Law School is conditional upon receipt of a final official transcript of all undergraduate and graduate work undertaken by the candidate.

## **Admission Procedures: Summer Joint Degree Programs**

Procedures for admission to the summer joint degree programs are no different from those established for the regular J.D. program commencing in the fall semester. Applicants should indicate on the application form that they are applying to the summer program and designate either the LL.M. program offered by the Law School, or the Graduate School department in which they wish to pursue the M.A. Applicants to the LL.M. program are selected by the Law School Admissions Committee. The selection process for M.A. applicants is bifurcated. Upon a favorable decision by the Law School Admissions Committee, the M.A. applicant's file will be forwarded to the appropriate Graduate School department for review. Applicants must be formally admitted to the M.A. program by the Graduate School.

Students must elect whether they wish to be considered for entrance in the summer or fall, and may not be considered concurrently for admission to both programs. A student wishing to change that election may do so prior to receipt of a final admission decision without payment of an additional processing fee. However, the Admissions Committee will treat the application to the alternate program as newly completed; thus a late change in election may prejudice the applicant's chance for admission. This policy reflects our need for a firm commitment from applicants regarding which program they wish to enter so that we may deal fairly with all applicants competing for a limited number of spaces in each class. Although applicant pools may change from year to year, our experience has been that competition for spaces is approximately equal for the two programs.

## **Other Joint Degree Programs**

Applicants for any of the other joint degree programs offered by the Duke Law School are considered for admission to both schools on the same basis as those applicants who are applying for the individual programs. The admission decision of one school has no bearing on the admission decision of the other school. If accepted for admission by both schools, the applicant is automatically eligible to participate in the established joint degree program. Students planning to participate in such programs should notify the Law School immediately upon their admission.

## **Master of Legal Studies**

Admission to this degree program is limited to persons who have achieved distinction in law-related professional work or who are pursuing law-related graduate degrees in other fields. Application to the program proceeds in exactly the same manner as for the J.D. program, with the single exception that the LSAT is not required of applicants who have taken the Graduate Record Examination in their primary field of study. Applicants who wish to substitute the GRE score should have an official report sent to the Admissions Office.

## **Reactivating Admissions Files**

If an applicant has applied for admission in a previous year and was not extended an offer of admission or chose not to enter during that academic year, he or she may request that the file be reactivated for consideration by the Admissions Committee. The applicant should update his or her personal statement at that time. A nonrefundable fee of \$55 is charged for processing the application, and a check or money order for this amount must accompany the request for reactivation of the file. The applicant will not be required to reregister with the Law School Data Assembly Service (LSDAS) unless he



or she retakes the LSAT after initially applying to the Law School. An updated transcript will be required to document academic work completed but not reflected on the last LSDAS report received by Duke. Application files are retained for five years.

## **Transfer Policy**

In order to be considered for admission to Duke, a transfer applicant must present evidence of the satisfactory completion of one year of study at any law school that is a member of the Association of American Law Schools, and be eligible for readmission to that school. To be given serious consideration for admission, an applicant should rank in the top third of the class. Two academic years of law study must be completed at Duke.

The following items are required to complete a transfer applicant's admission file:

1. A nonrefundable processing fee of \$55;
2. Letter of certification from the Dean of the law school attended;
3. References from two law professors who have personal knowledge of the academic performance and potential of the applicant;
4. Certified transcript of all grades earned in the first year of law school;
5. A copy of undergraduate transcript and LSDAS report.

Ordinarily, it should not be expected that action will be taken upon transfer applications before July. Spring semester grades must be received before decisions can be made.

## **Graduate Study in Law**

Admission to Duke to pursue law study beyond the basic professional degree is generally limited to J.D./LL.M. candidates and international students. For information about application to the graduate study program, see the description of admission procedures for the summer joint degree program or the section on international students.

## **University and Law School Rules**

Students are subject to the rules and regulations of the University and the Law School that are currently in effect, or those that in the future may be promulgated by the appropriate authorities of the University. Every student, in accepting admission, indicates a willingness to subscribe to and be governed by these rules and regulations. The student also acknowledges the right of the University to take such disciplinary action, including suspension and/or expulsion, as may be appropriate, for failure to abide by these rules and regulations, or for other conduct adjudged unsatisfactory or detrimental to the University.

Duke University is a drug-free work place as defined by federal regulations.

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*Financial Information*



The cost of providing a legal education of the quality offered by Duke is high and has been steadily increasing. An annual report of the Law School explains in moderate detail what those costs are, and how they are met; a copy is available on request. As the report reveals, the Law School is substantially subvented by the University from its endowment sources. In addition, the Law School has some resources of its own, including generous annual giving support from its alumni. Nevertheless, the bulk of the cost of the program must be borne by the students who receive it.

## Tuition

**J.D., LL.B., and M.L.S. Candidates.** For the academic year 1989-90, entering students in the J.D. program, transfer students, and candidates for the M.L.S. degree will pay a full year's tuition of \$14,400. Students pursuing the J.D./M.A. or the J.D./LL.M. in the summer entering program will pay an additional \$4,800 in tuition for the summer term.

Subsequent years of study toward the J.D. program will be billed at the current tuition rate. In recent years, that rate has been significantly increased each year. Students in joint degree programs will be billed tuition at rates appropriate to their particular programs.

Entering students must pay their tuition in full before the first day of class and will receive no refund in the event of withdrawal. The reason for this policy is to discourage tentative enrollment which may have the effect of depriving another student of the opportunity to enroll. After the first semester, students who withdraw may be entitled to a substantial refund in accordance with University policy.

**Graduate Degree Candidates.** Students pursuing the LL.M. degree will pay tuition of \$14,400 in 1989-90 for their single year of instruction. S.J.D. candidates must enroll for two years; tuition for the S.J.D. program for 1989-90 is set at \$14,400.

## Other Fees

**Late Registration Fee.** Students who register in any semester at a date later than that prescribed are required to pay a \$25 penalty.

**Student Health Fee.** A student health fee of \$256 (\$128 per semester) is charged to all Duke University students. Optional health insurance is available at a cost of \$309 for a single student, \$1,009 for married student coverage. These figures are approximations.

**Absentia Fee.** Students granted permission to visit at another law school in order to earn credits toward the Duke degree must pay an in absentia fee. For 1989-90, the in absentia fee is \$4,800 per semester.

**Athletic Events Fee.** Law students may secure admission to all regularly scheduled University athletic contests, with the exception of soccer and basketball, held on University grounds during the entire academic year free of charge. The fee for basketball and soccer is payable in the fall semester. Students may also use the facilities of the Duke golf course upon payment of student green fees.

**Duke Bar Association Fee.** A \$16 fee each semester is due and payable not later than the day of registration for a particular semester. This fee is utilized exclusively to support the activities of the student bar association.

**Parking Fee.** Students wishing to drive to the campus may register a car for the Law School's parking lot at an annual fee to be determined by the University.

## General Expenses

Applicants should be aware that the following general expense estimate was compiled in the spring of 1989, and for future years appropriate revisions may be necessary to reflect inflationary increases. The best estimate of total living costs for a nine-month academic year excluding tuition and fees is approximately \$9,000 for a single student. Included in the above cost-of-living estimate are current expense levels for lodging, board, books (approximately \$850 if purchased new), supplies, transportation, and personal effects. Applicants for scholarships and loans should be aware that their proposed budget figures cannot exceed the above amount.

## University Policies for Payment of Accounts

**Payment of Accounts for Fall and Spring.** The Office of the Bursar will issue invoices to registered students for tuition, fees, and other charges approximately four to six weeks prior to the beginning of classes each semester. The total amount due on the invoice is payable by the invoice due date which is normally two weeks prior to the beginning of classes. As part of the admission agreement to Duke University, a student is required to pay all invoices as presented. No deferred payment plans are available. If full payment is not received, a late payment charge as described below will be assessed on the next invoice and certain restrictions as stated below will be applied. Failure to receive an invoice does not warrant exemption from the payment of tuition and fees nor from the penalties and restrictions.

**Penalty Charge.** If the total amount due on an invoice is not received by the invoice due date, a penalty charge will be assessed from the billing date to the due date of that invoice. The penalty will be assessed on the subsequent invoice at an annual rate of 16 percent applied to the past due balance on that invoice. The past due balance is defined as the previous balance less any credits received and any payments received on or before the due date and also any student loan memo credits, related to the previous balance, which appear on the invoice.

**Restrictions.** An individual will be in default of this agreement if the total amount due on the student invoice is not paid in full by the invoice due date. An individual who is in default will not be allowed to register for classes, receive a copy of the academic transcript, have academic credits certified, be granted a leave of absence, or receive a diploma at graduation. In addition, an individual in default will be withdrawn.



**Tuition Refunds.** Tuition refunds are governed by the following policy:

1. In the event of death or a call to active duty in the armed services, a full tuition refund is granted.
2. First-year students withdrawing after the tuition due date for the summer or fall term are ineligible for any tuition refund.
3. In all other cases of withdrawal, students or their parents may elect to have tuition charges refunded or carried forward as a credit for later study according to the following schedule:
  - a. withdrawal before the beginning of classes—full refund;
  - b. withdrawal during the first or second week—80 percent;
  - c. withdrawal during the third through fifth week—60 percent;
  - d. withdrawal during the sixth week—20 percent
  - e. withdrawal after the sixth week—no refund; but
  - f. tuition charges paid from grants or loans will be restored to those funds and will not be refunded or carried forward.

## Scholarship Assistance

Professional education is expensive. Unfortunately, the Law School must rely upon students to bear the primary burden of this cost, with such help as they may receive from families, governments, or other organizations. The Law School, however, does provide a number of substantial scholarships to entering students.

Scholarship awards are generally made in the form of a contract committing the school to a total grant to be disbursed over the student's first five semesters of Law School. This schedule makes more money available early, when it is most needed, since summer savings and permanent job prospects lessen the financial burdens of most students in the third year.

Students seeking scholarship assistance should file a financial aid application at the same time they apply for admission. Most awards are made just following the admission decision, so that applicants may receive the earliest possible notice of the extent of scholarship support available. The fact that a student has applied for financial aid will not affect the decision on the application for admission.

**Need Awards.** The Law School also provides a number of scholarships that are intended primarily to aid those students who are most in need of financial assistance. In order to qualify for assistance of this kind, students must have a report prepared for the Law School by the Graduate and Professional School Financial Aid Service (GAPSEAS), Box 6660, Princeton, New Jersey 08540. In order to insure that full consideration of financial need is possible at the time when most of our scholarship funds are awarded, such students are also required to provide accurate information regarding family income and other relevant circumstances on the Duke financial aid application. Inclusion of parental information on the Duke form is mandatory, regardless of whether the student is technically considered "dependent" under federal guidelines. The Law School fully recognizes that many students are independent of their families for all purposes, but in choosing among competing student needs, those that cannot be met by parents will be accorded priority.

**Merit Awards.** The Law School competes for students with several fine institutions which enjoy longer traditions of excellence. In order to assure each entering class that it will have a solid core of outstanding members who are admissible to any law school, many awards are made each year based primarily on merit. Merit, for this purpose, is usually defined as extraordinary academic promise manifested by grades *and* test scores which are substantially above the class medians. But the criteria for merit awards also include extraordinary achievement or unusual experience or background. It is not to be supposed that persons receiving such awards are more meritorious, in the broadest sense of that



word, than many other entering students whose admissions credentials may seem a bit less unusual. Indeed, many students who do not receive merit awards will prove to be more deserving of praise as law students. But, it is believed, all students at the school are benefited by the solid assurance given that Duke law students as a group are among the ablest to be found anywhere.

While financial circumstance is a factor in awarding many of these scholarships, the primary purpose of these awards is to assure the quality of the entering class. Students receiving such awards are generally those who reasonably can be expected to make significant contributions to the community, by reason of their exceptional academic promise, extraordinary achievements, and valuable experience or background.

**Specially Funded Scholarships.** Many of the Law School's scholarships are funded from general endowment and other Law School revenues. However, some scholarship candidates are selected each year for support from one of several specially endowed scholarship funds. The criteria for these named awards vary; all students applying for aid will be considered for any special scholarships for which they may be eligible.

*James A. Bell Scholarships* were established by the Bell family in honor of a federal judge.

*Neill Blue Memorial Scholarships* were established in memory of a law student who suffered a tragic death in 1971.

*Dunspaugh-Dalton Foundation Scholarships* were established by a Miami foundation.

*Jenny Ferrara Scholarships* were established by Vincent L. Sgrosso, of the Class of 1962, in honor of his grandmother.

*The Hunton and Williams Scholarship* was established by the law firm of Hunton & Williams through its Raleigh, North Carolina office.

*The Jack M. Knight Memorial Fund* was established by a group of partners at the Charlotte, North Carolina law firm of Robinson, Bradshaw & Hinson, in honor of a 1971 law alumnus.

*Elvin R. Latty Scholarships* were established by alumni and friends in honor of a former Dean of the Law School.

*The Miller and Chevalier Charitable Foundation Scholarship* was established by a Washington, DC law firm.

*The Robert Netherland Miller Scholarship* was established by a Duke law alumnus in honor of a founding partner of the Washington, DC law firm of Miller and Chevalier.

*Richard M. Nixon Scholarships* were established by the Class of 1937 to honor their classmate, the former President of the United States.

*The John M. Olin Fellowship* was recently established through a grant from the John M. Olin Foundation to support interdisciplinary scholarship in law and economics.

*John R. Parkinson Scholarships* were established by the Parkinson family.

*South Carolina Law Alumni Scholarships* were established by South Carolina alumni.

*Anna Peirce Stafford Scholarships* were established in honor of members of the family.

*The Robert William and Robert Wheaton Walter Scholarships* were established by Robert William Walter of the Class of 1981, in honor of his father, Robert Wheaton Walter of the Class of 1948.

*Bunyon S. Womble Scholarships* were established by the Womble family in honor of the founder of a North Carolina law firm.

**Upperclass Awards.** The great majority of available scholarship funds are allocated to entering students and to students continuing under a scholarship contract awarded at the time of admission. Thus, very little funding is available to supplement contractual awards, even in cases of high need. However, the Law School is able to offer a very limited number of awards to upperclass students who demonstrate substantial need that cannot be met through other sources. Such awards are made for one year only, and carry no right of continuation; all students who apply for aid each academic year are automatically considered for these scholarships, some of which are dependent on the student's

performance in law school. In addition to such general endowment funds as may be available from year to year, funding for upperclass awards also comes from the following source:

*David H. Siegel Scholarships* were established by Allen G. Siegel, of the Class of 1960, in memory of his father.

## Loan Assistance

Students who need loan funds to help finance their legal education must also submit a financial aid application at the time admission is sought. When applicants receive an offer of admission they will generally know the amount of scholarship assistance available and will be given a very tentative commitment of loan funds. However, a final determination of loan eligibility is generally not made until late spring or early summer after financial information is complete. Students requiring an earlier estimation of loan availability should consult directly with the Law School's financial aid office.

Incoming students applying for loans administered or certified by Duke University must participate in the Graduate and Professional School Financial Aid Service (GAPSFAS). Information and application material for GAPSFAS may be obtained by writing to GAPSFAS, P. O. Box 6660, Princeton, New Jersey 08540. Forms for the next academic year are generally available in January, and should be completed and returned as soon as possible; six to eight weeks must be allowed for processing at the Princeton Center. GAPSFAS reports should be received by the Law School no later than May 1 to avoid disadvantaging the student. Additional documentation, notarized income tax returns for the student and his or her parents will be required at a later date.

At this time the following loan sources are either administered by Duke University or are available to Duke law students. Approval of applications for these loans is based on financial need and satisfactory scholastic standing. Students must maintain a minimum grade point average as specified in the Law School rules.

**Perkins Loan Fund (formerly the NDSL Program).** Loans are available to full-time Duke law students in good standing through the Perkins Fund, assuming the continuation of appropriations by Congress for this purpose. Duke administers all Perkins Funds allocated to it under strict guidelines dealing with such issues as the amount of parental income, reasonableness of budgets, complete disclosure of assets, and emancipation within the meaning of the applicable federal regulations. A GAPSFAS report is required to determine Perkins Fund eligibility.

**Stafford Student Loans—SSL (formerly Federally Insured Student Loan Program — FISL/GSL).** At this writing, the program allows a full-time student in good standing with demonstrated need according to the GAPSFAS report to borrow up to \$7,500 per year. Interest on these loans will be paid by the government while the student is in school.

**Other Loan Programs.** The Law School participates in other non-need based loan programs. Applications are available upon written request from the Law School's Financial Aid Office.

## Work Study

The Law School also receives a limited amount of federal work-study funds each year. The school does not recommend that first-year students work, so these funds are reserved for second- and third-year students. Positions using work-study funding are available each summer at the Law School. Students must acquire these jobs on their own, then seek funding early in the spring from the financial aid office. Academic year work-study is automatically allocated to second- and third-year students as a part of the student's aid package if funds are available.

## **Loan Repayment Assistance Program**

In May 1988 the Duke Law School faculty approved a program under which the school will assist students who accept low-paying public interest employment following graduation to repay the loans they undertook to support their Law School education. The faculty took this action in recognition of the financial burden that large educational loans imposed on new graduates. In order to repay these loans many students who would otherwise be inclined to accept relatively low-paying public interest employment feel compelled to take higher paying positions with private law firms. The faculty's action was an attempt to ameliorate the hardship imposed on graduates taking such public interest jobs and as a response to the school's obligation to support public interest service by its graduates.

## **Visiting Students**

All financial assistance for visiting students at Duke Law School must be processed through the institution from which the student will receive his/her degree.

*Scholastic Standards*



## **Grading**

Most courses are generally available only on a graded basis. Independent research, ad hoc seminars and occasionally some other courses may be designated for credit/fail grading by action of the faculty. If a student has previously taken or audited a course for at least an eight-week period, or in other special circumstances, credit/fail grading may be required or authorized in an individual case at the discretion of the instructor and the Dean.

## **Other Standards and Rules**

Like all academic institutions, the Law School is governed by scholastic standards and rules promulgated by the faculty, which cover such matters as eligibility to continue the study of law, academic probation, minimum and maximum course loads, examinations, and registration procedures. A complete copy of these rules is available for review in the Law School library.

*Curriculum*





## First-Year Curriculum

### MAJOR COURSES

**110. Civil Procedure.** A consideration of the basic problems of civil procedure designed to acquaint students with the fundamental stages and concerns of litigation—e.g., jurisdiction, pleading, discovery, trial, choice of law, and multiparty actions. In addition, this course will highlight a number of specialized topics including the role of juries in deciding civil disputes, the ethical responsibilities of the litigation attorney, and the development of alternative dispute resolution systems. At several points, this course will focus on an analysis of the procedural system's operations as revealed through empirical studies. *Metzloff or Carrington*

**120. Constitutional Law.** An examination of the distribution of and limitations upon governmental authority under the Constitution of the United States. Included are study of the doctrine of judicial review of legislative and executive action, the powers of Congress and the President, the limitations on state governmental powers resulting from the existence or exercise of congressional power, and judicial protection against the exercise of governmental power in violation of rights, liberties, privileges, or immunities conferred by the Constitution. *Dellinger, Rowe, Powell, or Van Alstyne*

**130. Contracts.** The formation and legal operations of contracts, their assignment, their significance to third parties, and their relationship to restitution and commercial law developments; the variety, scope, and limitations on remedies; and the policies, jurisprudence, and historical development of promissory liability. *Bernstein, Weistart, or Bartlett*

**140. Criminal Law.** An introductory study of the law of crimes and the administration of criminal justice, including analysis of the criminal act and the mental element in crime, consideration of specific offenses as defined by statute and the common law, and discussion of typical defenses in relation to specific crimes. One of the purposes of this course is to introduce the students to the nature of social control mechanisms and the role of law in a civilized society. *Baxter or Beale*

**160. Property.** A study of the basic concepts of real property law and conveyancing, including historical background; estates in land, including the fee simple, the fee tail with its statutory substitutes, the life estate, the estate for years, and other nonfreeholds; concurrent ownership; types of future interests; conveyances before and after the Statute of Uses; landlord and tenant; the modern deed—kinds, delivery, description, title covenants, and agreements running with the land at law and in equity; easements; and recording and title registration. *Maxwell, Reppy, or Schroeder*

**170. Torts.** An analysis of liability for personal injuries and injuries to property. The law of negligence occupies a central place in the course content, but this course also

considers other aspects of tort liability such as strict liability, liability of producers and sellers of products, nuisance, liability for defamation and invasion of privacy, and commercial torts. The subjects of causation, damages, insurance (including automobile no-fault compensation systems), and workmen's compensation are also included. *Christie, Lange, Robertson, or Stone*

## MINOR COURSES

**150. Professional Advocacy.** One-week intensive course in professional responsibility. 1 s.h. *Staff*

**190. Legal Writing and Advocacy.** Following instruction in legal research, students write three or five papers (from client letters to formal appellate briefs) under tutorial supervision of faculty member; at least one brief is argued orally. *Bartlett, Dellinger, Lange, Reppy, Robertson, Rowe, Schroeder, Stone, or Weistart*

**198. Legal Institutions.** A comparative study of legal institutions as they have developed in various societies. This course is required for first-year students in the J.D./LL.M. program and is limited to students in that program. 2 s.h. fall. *Carrington*

## The Upperclass Curriculum

In the absence of special authorization from the Dean, each student is required to take in each semester courses aggregating not less than twelve and not more than sixteen semester-hours in order to be considered a full-time student for purposes of meeting the residency requirement for the J.D. degree.

The program in the second and third years is entirely elective. In planning his or her program, however, the student should bear in mind that certain more basic courses may be prerequisites to other more advanced courses, and that for this reason—as well as to avoid possible schedule conflicts—it is generally advisable to take these more basic courses in the second year.

To facilitate casual examination by the prospective admissions applicant, the upperclass curriculum is divided here into the following categories: (1) American Law and the Private Sector; (2) American Legal Institutions and Procedure, (3) Family Property and Relations, (4) Foreign and International Legal Studies, and (5) Legal Theory and History. Upperclass students are free to select courses without regard for these categories. A number of courses fall clearly into at least two categories and may therefore be listed twice; others could reasonably be listed in two or more categories, but are not.

Those offerings listed as courses are open to large enrollments. Those listed as clinical are limited to enrollment in order to permit close supervision of the professional work students are required to perform. Those listed as regular seminars are also limited in enrollment; research papers are generally required. Those listed as research tutorials are limited to a very few students in number and engage the students in research projects with the instructor.

## Upperclass Courses

### I. AMERICAN LAW AND THE PRIVATE SECTOR

**400. Admiralty.** An examination of the special body of law governing maritime affairs, especially the transportation of goods and passengers by water. Included in this coverage are admiralty jurisdiction, marine insurance, carriage of goods, charter parties, general average, rights of injured seamen and others, collision, salvage, maritime liens and ship mortgages, limitation of liability, and governmental activity in shipping. (Not offered 1989-90.)

**205. Antitrust.** A study of the federal antitrust laws and the policy of using competition to control private economic behavior. 3 s.h. spring. *Meurer*

**583. Antitrust Practice (Clinical Course).** A study of selected current antitrust problems conducted by a professor and a former chairman of the Federal Trade Commission. In addition to examining problems of current doctrinal and theoretical interest (*e.g.*, vertical restraints, merger policy and joint ventures, standard setting and certification, implied exemptions, and professional self-regulation), the class will be given assignments of a practical (clinical) nature. Prerequisite: Antitrust. (Not offered 1989-90.)

**207. Athletics and the Legal Process.** An examination of legal relationships in professional sports as a basis for developing concepts about the nature of the legal process. To be examined are the respective roles of private contract, collective bargaining, and private and public litigation to resolve conflicts both between players and clubs and among clubs themselves. The major concepts to be applied will be drawn from the areas of labor, antitrust, and contracts law. (Normally offered only in alternate years. Requires prior or concurrent enrollment in Labor Relations.) 2 s.h. spring. *Weistart*

**325. Bankruptcy.** A study of the methods by which conflicts between the financially distressed debtor and its creditors and conflicts among its creditors may be resolved under the liquidation or rehabilitation chapters of the Bankruptcy Reform Act of 1978. Prerequisite: Commercial Law or Secured Transactions or permission of the instructor. 4 s.h. spring. *Shimm*

**255. Basic Federal Income Taxation.** An introduction to federal income taxation, with emphasis on the determination of income subject to taxation, deductions in computing taxable income, the proper time period for reporting income and deductions, and the proper taxpayer on which to impose the tax. 4 s.h. fall. *Ward*. 4 s.h. spring. *Schmalbeck*

**210. Business Associations.** An examination of the state and federal law pertinent to corporations and, to a lesser extent, partnerships as business entities. Detailed attention is given to the legal ground rules for the life cycles of corporations—to their organization, preincorporation transactions, basic financial structure, internal governance arrangements, dissolution, and other fundamental changes. Further, a detailed study is made of those portions of the federal securities law that most closely affect the organic law of the corporation—federal regulation of the proxy system and of tender offers and federal restraints on inside trading and on certain other transactions in securities. 4 s.h. fall. *Hillman*. 4 s.h. spring. *Cox*

**300. Business Planning (Clinical Course).** Advanced work in corporation, partnership, and income tax law, securities regulation, and accounting. Attention is focused on a series of problems that commonly and currently face business lawyers in the formation and financing of business organizations; restructuring ownership interests and financing their withdrawal; sales and purchases of businesses; and merger and other enterprise combination, enterprise division, and dissolution. The problems are analyzed, and solutions are presented in class discussion and papers by an integrated approach that embraces the interplay of restraints posed by various areas of the law. Prerequisite: Corporate Taxation (may be taken concurrently). (Not offered 1989-90.)

**584. Collective Bargaining (Seminar).** A comprehensive treatment of the legal and practical aspects of negotiating a collective bargaining agreement in both the public and private sectors. There is substantial student participation, together with practical demonstrations relating to arbitrations and typical bargaining problems. 3 s.h. fall. *Siegel*

**215. Commercial Law.** An integrated study of the law governing commercial transactions and emphasizing the application of the Uniform Commercial Code, particularly the articles dealing with commercial paper, bank deposits and collections, and secured transactions. Topics that are given particular attention include the function and incidents of common forms of negotiable instruments, the mechanics of the bank collection process, and the operation of retail credit systems. 4 s.h. fall. *Shimm*

**495. Commercial Law II.** A continuation of Commercial Law focusing on payment systems and dealing particularly with letters of credit, credit cards, and electronic funds transfer. (Not offered 1989-90.)

**569. Commercial Practice (Clinical Course).** A study of the professional tasks involved in the resolution of commercial disputes. Students are divided into small simulated law firms, each working under the supervision of a senior fellow who is a partner in a major law firm. Each firm receives a portfolio of problems to be handled throughout the year. The assigned tasks for each problem include legal analysis of the client's position and preparation of a memorandum, advice to the client, settlement negotiations with adversary counsel, preparation of briefs, and oral argument before a judge. The problems are prepared, and the work of the student firms largely evaluated, by external examiners who are associates in major law firms. Enrollment is limited to thirty-six students and is subject to approval of the course administrator. 2 s.h. fall and 2 s.h. spring. *Pursley*

**315. Corporate Finance.** A consideration of the role and impact of financial analysis in the application and development of legal norms in connection with recurring corporate transactions. Coverage includes an investigation of the financial considerations arising in connection with valuation of a business corporation, rearrangement of the rights of creditors and stockholders in bankruptcy, establishment of dividend and reinvestment policies of publicly traded corporations, and measurement of the fairness and success of corporate acquisitions. 2 s.h. spring. *DeMott*

**320. Corporate Taxation.** A study of the special provisions of the Internal Revenue Code concerning the tax effects of the major events that occur in the life span of a corporation, including the taxation of distributions to shareholders and the formation, reorganization, and liquidation of corporations. Prerequisite: Basic Federal Income Taxation. 3 s.h. spring. *Schmalbeck*

**359. Economic Analysis of the Law.** An exploration of diverse topics in law and economics such as property rights and externalities, tort law and optimal accident prevention, use of economics by the courts, the economics of contracts, and theories of economic justice. 3 s.h. spring. *Culp*

**589. Economic Analysis of Patent Law (Seminar).** This seminar will draw upon concepts from microeconomic theory to explore policy issues relevant to the design and implementation of an efficient patent system. A substantial portion of this seminar will be devoted to an examination of the conflict between antitrust law and patent law concerning the terms of patent licenses. Other topics to be studied include: the litigation and settlement of infringement suits, a comparison of trade secret law with patent law, and the scope of the disclosure requirement attendant to the patent grant. Our inquiry will emphasize consideration of the effect of patent institutions on the incentive to undertake research and development, and the costs to society of providing that incentive.

The necessary economic theory will be developed in the seminar, but a background in economics would certainly be helpful. Prerequisites: Antitrust law or intellectual property law, joint degree program in law and economics, or permission of the instructor. (Not offered 1989-90.)

**517. Employment Discrimination.** A study of the law of employment discrimination, focusing mainly on federal law prohibiting race, sex, age, and handicapped discrimination. This course provides a basic knowledge of statutory coverage, standards, procedures and proof, and avenues of relief. Class discussion emphasizes important issues arising in current cases: for example, reverse discrimination versus affirmative action, the controversial "comparable worth" concept in equal pay litigation, and the "bottom line" defense to test invalidation. 3 s.h. spring. *Culp*

**326. Entertainment Law (Clinical Course).** An introduction to selected theories, statutes, and regulations (other than intellectual property law) governing principal

undertakings, business transactions, and legal relationships in the entertainment industry, including publishing, the theater, television and motion pictures, music, and related fields. (Normally offered in alternate years. Requires concurrent or prior enrollment in Intellectual Property I.) 3 s.h. fall. *Lange*

**327. Environmental Law.** A study of major policy and legal issues raised by efforts to manage environmental harms and pressure ecological systems. Emphasis in the course is on recurring themes and conflicts, and on the economic, social, ecological, and political assumptions that underlie the different responses that have been proposed. (Not offered 1989-90.)

**659. Fiduciary Obligation, Agency and Partnership.** This course examines, in a variety of contexts, the operation and significance of fiduciary obligation, that is, the obligation to be loyal to the interests of another person in preference to self-interest. This obligation's relationship to contract law is explored at some length. After an initial introduction to common themes and problems in relationships subject to fiduciary norms, the course covers the law governing agency and partnership, two types of relationships in which fiduciary obligation is intrinsic. The course will also examine the increasing application of fiduciary norms, and obligations to act in good faith, to long-term commercial relationships, including lender-borrower, franchisor-franchisee and manufacturer-distributor relationships. Additionally, the course will explore examples of complex statutory schemes, and investment advisers such as those regulating employee benefit plans, that impose fiduciary obligations on persons serving in designated capacities. Although the course has no prerequisites, students who have already taken either business associations or trusts and estates are likely to benefit most from the course. 3 s.h. spring. *DeMott*

**250. Financial Information, Accounting, and the Law.** Many attorneys are required to evaluate financial data, notably financial statements from corporations, on a regular basis. The need is not limited to corporate attorneys; indeed litigators in securities, antitrust, malpractice, or general commercial litigation frequently must analyze financial information. Proper evaluation requires a familiarity with accounting principles and practices. This course serves to both introduce basic accounting principles and practices and their relationship to the law, as well as to study a number of contemporary accounting problems relating to financial disclosure and the accountant's professional responsibility. Enrollment limited to students who have previously had no more than six hours of accounting courses. 2 s.h. fall. *Etheridge*

**337. Health Care Law and Policy.** A survey of the legal environment of the health services industry in a policy perspective, with particular attention to the tensions and trade-offs between quality and cost concerns. Topics for study include manpower policy and licensure; private personnel credentialing and institutional accreditation; hospital staff privileges; malpractice liability; health planning and certificate-of-need regulation; hospital reimbursement and rate setting; public and private methods of rationing medical care; health insurance and alternative financing and delivery systems; and the emerging role of competition and antitrust law. This course should be of interest to students interested in public policy and in law and economics as well as those with specific interests in the health care field. (Not offered 1989-90.)

**229. Insurance Law.** An examination of the nature of insurance and the insurance contract. Possible topics include: the role of risk classification, marketing, the principle of indemnity and the notion of an insurable interest, subrogation, the risks transferred, rights at variance with policy provisions, claims processes, and justifications for and the nature of regulation of insurance institutions. 2 s.h. fall. *Bernstein*

**377. Intellectual Property.** An introduction to the principal theories of intellectual property in the fine arts and in the entertainment and sports industries. Includes comprehensive instruction in copyright, unfair competition, and the right of publicity, as well

as selective coverage of other related subjects. *Not available to persons previously enrolled in Intellectual Property I or Intellectual Property II.* 3 s.h. fall. *Lange*.

**607. Intellectual Property III (Tutorial).** Research and writing on selected topics in intellectual property. Limited availability; permission of the instructor required. 3-6 s.h. fall and spring. *Lange*

**240. Labor Relations.** A study of the law of labor-management relations, centering upon the National Labor Relations Act, as amended. This course investigates problems involved in the regulation of industrial conflict (strikes, picketing, boycotts, and unfair labor practices by employers), the establishment of the collective bargaining relationship, the negotiation and enforcement of the collective agreement, the arbitration of disputes under the agreement, the relationship between the union and its members, and the protection of individual and minority rights. 3 s.h. fall. *Horowitz*

**544. Land Use Planning (Seminar).** An in-depth study of select jurisdictions to determine the impact of various legal issues in land use planning on communities in those jurisdictions, including the "taking issue"-section 1983; the Central Business District and the Sherman Act; the impact of changing demography in the last thirty years on local zoning policies; the acceptance or rejection of the halfway house; and the attitude of communities toward "time sharing." A term paper is expected. (Not offered 1989-90.)

**396. Oil and Gas.** A study of the law governing the recognition and protection of property interests in oil and gas in natural reservoirs and an analysis of the transactions, particularly the oil and gas lease, by which the right to produce oil and gas is purchased. Although this course is focused on the private law problems of landowners and firms interested in mineral development, the legal problems and policy implications of government intervention for conservation and for economic regulation are considered. (Not offered 1989-90.)

**411. Partnership Taxation.** An examination of the federal income tax treatment of partners and partnerships, including problems arising from contributions of property to, and distributions of property from, a partnership; the validity of special allocations of taxable income and deductions; the consequences of sales and other transfers of partnership interests; the treatment of service partners; special problems concerning the investors' basis for deductions when a partnership raises capital by borrowing. Prerequisite: Basic Federal Income Taxation. 2 s.h. fall. *Ward*

**593. Professional Liability (Seminar).** The past fifteen years have seen a significant increase in the number, as well as the complexity, of claims asserted against professionals. The potential liability of attorneys, accountants, doctors, architects, and other "professionals" is a matter of great importance given the significant resources expended in providing professional services in the United States. This course will analyze the contours of liability principles in professional malpractice cases in the context of the legal, medical, and accounting professions. In addition, this course will study the interaction of malpractice cases with professional ethics and the theory of self-regulation. (Not offered 1989-90.)

**365. Real Estate Financing.** An examination of the law governing transactions in which land is used as security for a debt. This course will focus on the law of a single jurisdiction to allow students to work with the subject in a systematic and realistic fashion. Although most of the materials used will come from the legal system of California, reading assignments will also be made in a general textbook. Prerequisite: Commercial Law. (Not offered 1989-90.)

**370. Regulated Industries.** A study of government economic regulation and deregulation in such regulated industries as transportation, electric power, telephone, broadcasting, oil and gas, and health care, with emphasis on control of entry, mergers, and rates, and on the interface between regulation and the antitrust laws. (Not offered 1989-90.)

**375. Securities Regulation.** A study of the federal and state securities laws and the industry they govern with emphasis on the regulation of the distribution process and trading in securities; subjects dealt with include the functions of the Securities and Exchange Commission, registration and disclosure requirements and related civil liabilities, "blue-sky" laws, proxy solicitation and reporting requirements, broker-dealer regulation, the self-regulatory functions of the exchanges, and the regulation of investment companies. 3 s.h. fall. *Cox*

**376. Securities Regulation II. (Seminar).** This seminar will meet approximately every other week during the spring 1990 semester, generally on Friday afternoon, with occasional Saturday morning meetings to review written projects. This class will focus on selected current issues in securities regulation and financial institution regulation. The selected issues will be explored in fact-specific settings from a client-oriented, hands-on perspective. One of the fact settings will involve a complete review of a major corporate transaction, such as an acquisition, recapitalization or leveraged buyout. Emphasis will be placed on identifying the specific legal issues involved and evaluating the range of alternatives available to the client to achieve its business objective.

The selected current issues will include some of the following issues: share purchase rights plans (so-called "poison pills"); recapitalizations as anti-takeover defenses; inadvertent investment companies; formation of an investment company; regulatory problems involved with the acquisition of financial institutions; interstate banking expansion; issuer repurchases of its own securities; management sponsored leveraged buyouts; innovative financial instruments, (e.g., collateralized securities, zero coupon notes, adjustable rate preferred); issues involved in negotiated acquisitions of public companies, including disclosure of merger negotiations and lock-ups.

Course work will include three or four memoranda of three to five pages each. Two of the memoranda will be done on a team basis, with each team consisting of two to three students. 3 s.h. spring. *Hart*

**644. Securities Regulation III (Research Tutorial).** This seminar will carry one (1) unit of credit in the fall and two (2) units of credit in the spring. Students must enroll in each semester and there is a limit of six students. Students will work closely with Professor Cox in preparing textual material for a forthcoming book on securities regulation. Students will select two or three topic areas each to be examined in an extensive memorandum. Among the topics are broker-dealer obligations under the securities laws, national market systems, scope of Investment Company Act and Investment Advisors Act, securities underwriting practices, regulation of broker-dealers by membership organizations, the meaning of distributions, and the section 5 obligations of control persons. (Not offered 1989-90.)

**518. Tax Exempt Organizations (Seminar).** Structure, incidence, and economic effects of major federal taxes. Special attention to problems of inflation, income definition, and distortions of economic incentives in the areas of savings and investment. Prerequisite: Basic Federal Income Taxation. (Not offered 1989-90.)

## II. AMERICAN LEGAL INSTITUTIONS AND PROCEDURES

**200. Administrative Law.** A study of administrative agencies and legislative authority, information gathering and withholding, rule-making and order-formulating proceedings, judicial review of administrative action, and constitutional limitations on administrative powers. 3 s.h. fall. *Schroeder*

**546. Advanced Constitutional Law (Seminar).** This seminar will study the institutional processes of the United States Supreme Court and will include an intensive review of major cases recently decided by the Supreme Court or currently on the Court's docket. This seminar is intended for students in their last semester. A paper is required. 2 s.h. spring. *Dellinger*.

**583. Antitrust Practice (Clinical Course).** A study of selected current antitrust problems conducted by a professor and a former chairman of the Federal Trade Commission. In addition to examining problems of current doctrinal and theoretical interest (e.g., vertical restraints, merger policy and joint ventures, standard setting and certification, implied exemptions, and professional self regulation), the class will be given assignments of a practical (clinical) nature. Prerequisite: Antitrust. (Not offered 1989-90.)

**536. Child Advocacy (Clinical Course).** A two-semester practicum in child advocacy. Students will be assigned to represent children in abuse and neglect cases in Durham County, under the supervision of members of the Durham bar and the course instructor, pursuant to the North Carolina Rules Governing the Practical Training of Law Students. Students will gain experience in interviewing, counseling, negotiation, case planning, trial practice, motion practice, and some discovery. In addition to work on actual cases, students will participate in a classroom seminar, in which the practical and ethical considerations involved in representing children will be explored. Medical doctors, social workers, psychologists, judges, and attorneys will participate in the seminar sessions. Simulated exercises will be used to sharpen advocacy skills. Must be taking or have taken Family Law and Trial Practice. Must also be a third-year student in good academic standing. Class limited to nine students. 2 s.h. fall and 2 s.h. spring. *McAllaster*

**380. Civil/Criminal Trial Practice (Clinical Course).** An introduction to the civil and criminal litigation process and attendant skills. This course emphasizes the interactions between attorneys and witnesses and between lawyers and juries by use of simulation and videotape pedagogy. Areas of inquiry include trial preparation, opening statements, closing arguments, direct- and cross-examination of witnesses, objections, introduction of evidence, and trial preparation. Each student completes the course requirements by participating as counsel in a full jury trial. In the spring semester, instruction will be concentrated in the first half of the semester. It will begin with an intensive weekend of instruction in January. Prerequisite: Evidence. 3 s.h. fall. *Swinson*; 3 s.h. spring. *Becton, Beskind, Johnson and Kuniholm*

**506. Civil Litigation (Clinical Course).** This new offering will combine a clinical placement with in-class work. In the clinical component of the course, each student will be placed with an attorney in the community and be given the opportunity to represent clients in a wide variety of actual civil cases pursuant to the North Carolina Rules Governing the Practical Training of Law Students. Placements will include private, legal aid, and public-interest law firms. In class, students will handle all pretrial aspects of a simulated civil case including the filing of the Complaint and Answer, drafting and responding to discovery, interviewing and fact investigation, negotiation, and motions practice. Enrollment is limited to twelve students. Prerequisites: Evidence and Trial Practice (latter may be taken concurrently). 4 s.h. spring. *McAllaster*

**420. Class Actions.** This course will examine the theory and practice of distinctively American contemporary innovations in civil procedure. The study will cover both injunctive and compensatory class suits, and such alternatives as public actions and interdistrict transfers for pretrial consolidation. This course will serve as a review of such matters as jurisdiction over parties, federal jurisdiction, venue, discovery, claim preclusion, issue preclusion, appellate jurisdiction, conflict of interest, the contempt power, attorney fee shifting, settlement, standing of parties, and most other topics that may have been the subject of study in the basic course in Civil Procedure. All are viewed in the more intricate setting of suits brought to assert and redress rights not merely of individuals, but of aggregations of alleged victims, or, in some cases, against aggregations of alleged wrongdoers. The secret can be disclosed in advance that such forms of litigation place strain on traditional theories of procedure resting on adversary responsibility and initiative and not infrequently leave the earnest student somewhat bewildered not merely by the complexity of the process, but also by its underlying tenets. (Not offered 1989-90.)



**310. Conflict of Laws.** A study of the special problems that arise when the significant facts of a case are connected with more than one jurisdiction, including recognition and effect of foreign judgments, choice of law, federal courts and conflict of laws, and the United States Constitution and conflict of laws. 3 s.h. spring. *Reppy*

**550. Constitutional History.** A three-part course, the first part is devoted to the Constitution's early history. The second part focuses on the institutions of slavery and the law before and after the Civil War. The third part focuses on the New Deal and its relations with the Supreme Court. 2 s.h. fall, 2 s.h. spring. *Dellinger, Leuchtenburg, and Franklin*

**625. Seminar in Constitutional Law—Theories of Constitutional Adjudication.** An examination of the role of the Supreme Court and problems of method in deciding constitutional issues. This seminar will cover such topics as the current controversy over "original intent," problems of interpretation, the uses of history, legislative motive, the "counter-majoritarian difficulty," legislative facts, and interest balancing. It is likely also to include some coverage of left (Critical Legal Studies) and right critiques of mainstream constitutional doctrine, and some illustrative application of various of these "method" questions in current or recent major cases. A paper is required, plus either an examination or a second paper. Prerequisites: completion of a basic course in constitutional law, and a (reasonably) serious interest in confronting difficult and often rather theoretical questions of the role the Supreme Court and constitutional adjudication should play in American government. (Not offered 1989-90.)

**521. Criminal Litigation (Clinical Course).** An examination of the lawyering process in criminal cases from the point of view of the criminal justice practitioner. Using videotape simulation, students will participate as attorneys in simulations of various stages of criminal justice process from initial interview through trial, with special emphasis on pretrial proceedings. The clinical phase of the seminar requires each student to practice with criminal justice practitioners pursuant to the North Carolina Rules Governing Practical Training of Law Students. Placements include district attorneys, the public defender, and private defense counsel. Prerequisites: Criminal Procedure: Police; Evidence; and Trial Practice. 4 s.h. spring. *Rudolf and Maher*

**223. Criminal Procedure: Formal.** A study of the basic rules of criminal procedure, beginning with the institution of formal proceedings. Subjects to be covered include prosecutorial discretion, the preliminary hearing, the grand jury, criminal discovery, guilty pleas and plea bargaining, jury selection, pretrial publicity, double jeopardy, the right to counsel, and professional ethics in criminal cases. 3 s.h. fall. *Beale*

**222. Criminal Procedure: Police.** A study of the legal restrictions on police investigative practice which typically precede institution of formal proceedings, with special emphasis upon "stop and frisk," arrest, search and seizure, confession suppression, lineups, electronic surveillance, grand jury investigations, and operation of the exclusionary rule. 2 s.h. fall. *Everett*. 2 s.h. spring. *Mosteller*

**531. Dispute Resolution (Seminar).** One of the most significant recent developments in civil procedure is the evolution of alternative methods of resolving disputes. Under the general label of alternative dispute resolution (ADR), courts and private parties are increasingly using nontraditional methods to resolve disputes that previously were resolved through the traditional court process. This course will examine these alternatives and the implications of the development on the litigation process and the legal profession. Course materials will cover negotiation, arbitration, and mediation, as well as specific ADR techniques such as the mini-trial, court-annexed arbitration, and the summary jury trial. Special attention will be given to empirical analysis of the impact of alternatives. Classes will be concentrated in the early part of the semester to provide students taking

the associated clinical seminar with substantive background to perform their clinical work. 2 s.h. fall. *Metzloff*

**524. Dispute Resolution (Clinical Seminar).** Drawing upon substantive information from the Seminar in Dispute Resolution, students will work directly with practicing attorneys and court officials to review pending cases to analyze what alternative methods of dispute resolution, if any, would assist in their resolution. Most cases will involve medical malpractice claims owing to the fact that the Private Adjudication Center, a nonprofit affiliate of the Law School, is currently engaged in a research project in that area. 2 s.h., divided between fall and spring. *Metzloff*

**225. Evidence.** A study of the theory and rules governing presentation of evidence to a judicial tribunal, including the concept of relevancy; character evidence; judicial notice; real and demonstrative evidence; expert testimony; authentication of writings; the best evidence rule; competency, impeachment and rehabilitation of witnesses; hearsay and the exceptions to its exclusion; and privileged communications. 3 s.h. fall. *Mosteller*; 3 s.h. spring. *Dripps*

**555. Federal Appellate Practice (Clinical Course).** This course includes study of appellate practice and procedure in the federal courts and instruction in oral advocacy and brief writing. Students argue a difficult appeal to an experienced judge. Students who excel are selected for the Moot Court Board, competition for the Dean's Cup, and interscholastic competition in appellate advocacy. 2 s.h. fall. *Ervin, Friedman, Gibbons, Phillips and staff*

**371. Federal Banking Regulation.** An examination of the regulation of depository institutions (banks, savings and loan associations, and credit unions) by the federal banking agencies. The course surveys the chartering, supervisory, and enforcement activities of agencies such as the Board of Governors of the Federal Reserve, Treasury Department, Office of the Comptroller of the Currency, Federal Home Loan Bank System, Federal Deposit Insurance Corporation, and National Credit Union Administration. This is a course that focuses primarily on the governmental regulation of banking institutions and not lender/borrower (banker/client) relations; hence, while lender/borrower relations are very substantially affected by official regulation in ways that will be investigated during the course, the course should be distinguished from conventional banking law courses. Prerequisite: Administrative Law (prior or concurrent registration), or permission of the instructor. 3 s.h. spring. *Baxter*

**500. Federal Civil Rights (Seminar).** A study of advanced constitutional law and federal practice, working through a series of problems to provide: (a) familiarity with the principal federal statutes (procedural, substantive, and remedial) used in civil rights litigation; (b) their judicial interpretation and application; and (c) a consideration of frontier constitutional issues. 3 s.h. fall. *Van Alstyne*

**340. Federal Courts.** A study of the many ways in which federalism and the separation of powers affect the workings of the federal courts and their relations with other branches and the states. This course covers the jurisdiction of the federal courts, original and appellate—justiciability, Congressional authority to define and limit diversity and question jurisdiction, removal, and pendent and ancillary jurisdiction; some aspects of the law applicable in federal court—*Erie*, federal common law, implied rights of action, and civil rights actions and immunities of officials and governments; and judgments—direct review of state and federal decisions, federal-state *res judicata*, and collateral attack via habeas corpus. 4 s.h. (2 fall, 2 spring). *Rowe*

**343. Federal Criminal Law.** This course deals with the enforcement of federal criminal statutes including those relating to tax fraud, mail fraud, civil rights, drug enforcement, the Hobbs Act, the Travel Act, and the Racketeer-Influenced and Corrupt Organi-

zations (RICO) Act. The limits on federal criminal jurisdiction and legal issues arising out of the overlap of federal and state law will also be examined. 2 s.h. fall. *Beale*

**344. First Amendment.** The basic constitutional law of the free speech-free press clause and the church-state clauses of the first amendment. 2 s.h. spring. *Van Alstyne*

**561. Forensic Psychiatry (Clinical Course).** This course is designed to provide the student with a working knowledge of the major areas of interface between psychiatry and law. Basic concepts of clinical psychiatry and psychopathology will be highlighted throughout the course. The attorney and the psychiatrist roles in the commitment process, right to treatment and right to refuse treatment, competency to stand trial, and criminal responsibility will be explored using a number of methods. Discussion of assigned readings, short lectures, interviews and observation of patients involved in legal proceedings, films, guest speakers, and field trips will form the basis of the course. The students will periodically be asked to use the information from the course together with independent and group research to complete short projects and class exercises. 3 s.h. fall. *Johnson*

**648. U.S. Fourth Circuit Development (Tutorial).** Research for the bicentennial history of the United States courts of the Fourth Circuit from 1789 to the present. Individual research and group discussion on the development of judicial institutions and research law in this southern circuit. 3-6 s.h. fall and spring. *P. Fish*

**494. International Litigation.** An examination of problems arising in litigation brought in federal courts by or against foreign nationals. Topics will include: (1) personal jurisdiction over foreign defendants; (2) service of process abroad; (3) forum non conveniens; (4) antitrust injunctions; (5) subject matter jurisdiction in international litigation; (6) foreign sovereign immunity; (7) forum selection clauses; (8) international arbitration; (9) taking evidence abroad; and (10) recognition and enforcement of foreign judgments. Enrollment is limited to twenty-four students. 2 s.h. fall. *Carrington*

**534. Judicial Administration.** Examination of the judicial function in relation to historical and contemporary politics of court organization, management, and procedures as well as of selection and discipline. Focus is on American federal judicial system with references to state and comparative aspects of adjudication-administration. Two required ten-page papers or weekly assigned reserve readings are due for seminar meeting devoted to discussion of those readings. With permission of the instructor a student may write an additional paper of substantial length on course subject matter, and receive 3 s.h. (Not offered 1989-90.)

**568. Judicial Function and the Appellate Process .** A study of select issues and problems concerning the judicial function and appellate process in the federal system. This course includes three phases. The first phase is devoted to a study of legal doctrine affecting the appellate process, including: jurisdictional issues of particular interest at the appellate level; final orders and interlocutory appeals; prudential considerations limiting appellate review; waiver of appealable issues; the proper scope and standard of review (with emphasis on administrative agency appeals); and the remedial authority of the courts. The second phase is designed to provide a significant clinical experience in appellate advocacy, including: analysis of an actual case problem; consideration of when and what to appeal; preparation of an appellate brief; and review of techniques of oral advocacy. The final phase focuses on the judicial process from a more reflective and philosophical perspective, including: a critique of the judicial philosophies of some leading jurists; a consideration of the function of courts and judges in a democratic society; and preparation of a short paper dealing with some significant aspect of the judicial process. (Not offered 1989-90.)

**540. Legislation (Seminar).** A study of the factors involved in the development and passage of legislation, and in its interpretation by the courts. Topics covered include theories of legislation, legislative procedure and process, problems in drafting statutes, com-

pilation of legislative histories, and determination of legislative intent. A research paper is required. (Not offered 1989-90.)

**571. Negotiation (Clinical Course).** An examination of the lawyer's role as a negotiator in seeking to resolve legal disputes without resort to full adjudication. This course focuses on techniques, tactics, ethics, and other aspects of the negotiation process. Students are divided into teams which compete with each other in seeking to negotiate settlements in a series of simulated disputes involving such matters as commercial transactions, personal injury claims, real estate transactions, antitrust litigation, and labor relations. Enrollment limited to twenty-four. 2 s.h. spring. *Hutchinson*

**593. Professional Liability (Seminar).** The past fifteen years have seen a significant increase in the number, as well as the complexity, of claims asserted against professionals. The potential liability of attorneys, accountants, doctors, architects, and other "professionals" is a matter of great importance given the significant resources expended in providing professional services in the United States. This course will analyze the contours of liability principles in professional malpractice cases in the context of the legal, medical, and accounting professions. In addition, this course will study the interaction of malpractice cases with professional ethics and the theory of self-regulation. (Not offered 1989-90.)

**498. Psychology of Litigation.** The litigation process inherently involves psychological perceptions and evaluations. What causes people to pursue legal rights in the first place? Why does settlement of disputes occur? What causes litigants to prefer different types of resolution forums? How do jurors respond to witnesses and other types of evidence? The seminar will address these and other questions by reference to empirical social science literature. (Not offered 1989-90.)

**332. Remedies.** A survey of the law of judicial remedies in civil litigation, with illustrative applications in various areas of private and public substantive law. This course covers the main types of remedies—compensatory and punitive damages, equitable relief including injunctions and specific performance, declaratory judgments, and restitution, considering both their basic characteristics and their interrelations. Illustrative applications are drawn primarily from the substantive fields of tort (injury to persons and to personal and real property), contract, and civil rights. Normally offered in alternate years. (Not offered 1989-90.)

**499. Social Science in Law (Seminar).** This seminar will examine the application of social science to problems of law. Selected problems will be considered in which the empirical methodologies of the social sciences can be used to produce evidence bearing on legal propositions. Some of these problems include discrimination, obscenity, trademark infringement, jury behavior, eye witness identification, dangerousness, the fashioning of remedies, and evaluations of legal reforms. The goal of this seminar is to teach the law student to be a sophisticated consumer—and critic—of the social science research that is used in all levels of American courts. Students need not have a social science background. (Not offered 1989-90.)

**546. The Supreme Court (Seminar).** This seminar will study the institutional processes of the United States Supreme Court and will include an intensive review of major cases recently decided by the Supreme Court or currently on the Court's docket. It is intended for students in their last semester. A paper is required. 2 s.h. spring. *Dellinger*

**510. Transformation of the Criminal Process (Seminar).** This seminar considers the degree to which American criminal justice has ceased to function as an adversary system predicated on culpability and become an administrative bureaucracy dedicated to social control. Topics will include confessions, discovery, preventive detention, plea bargaining, and sentencing, as well as the use of civil sanctions (such as forfeiture of property and denial of government employment) to enforce criminal laws. Readings will in-



clude L. Weinreb, *Denial of Justice: Criminal Process in the United States* (Free Press; paper ed., 1979), as well as selected cases and articles. A paper will be required. 2 s.h. spring. *Dripps*

### III. FAMILY PROPERTY AND RELATIONS

**330. Advanced Tax Topics in Estate Planning.** An examination of the problems and techniques of estate planning and administration, with a focus on weighing the tax effects of various forms of property disposition. Most of the course will be devoted to in-depth consideration of the federal gift, estate, and generation-skipping taxes; income taxation of trusts and estates will also be covered briefly. Prerequisites: Basic Federal Income Taxation; Trusts and Estates. 3 s.h. spring. *Adams*

**362. Advanced Topics in Trusts and Estates.** Creation and effect of future interests (usually in long-term trusts), including powers of appointment and the Rule Against Perpetuities. Part of grade can be earned by drafting model wills and trusts. Prerequisite: Trusts and Estates. (Offered every other year.) 3 s.h. spring. *Reppy*

**536. Child Advocacy (Clinical Course).** A two-semester practicum in child advocacy. Students will be assigned to represent children in abuse and neglect cases in Durham County, under the supervision of members of the Durham bar and the course instructor, pursuant to the North Carolina Rules Governing the Practical Training of Law Students. Students will gain experience in interviewing, counseling, negotiation, case planning, trial practice, motion practice, and some discovery. In addition to work on actual cases, students will participate in a classroom seminar, in which the practical and ethical considerations involved in representing children will be explored. Medical doctors, social workers, psychologists, judges, and attorneys will participate in the seminar sessions. Simulated exercises will be used to sharpen advocacy skills. Must be taking or have taken Family Law and Trial Practice. Must also be a third-year student in good academic standing. Class limited to nine students. 2 s.h. fall and 2 s.h. spring. *McAllaster*

**218. Community Property.** A survey of the marital property laws of Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington, and Wisconsin, with comparison to the Spanish system. Students may concentrate their studies on the law of one of the nine states. (Not offered 1989-90.)

**515. Estate Planning (Clinical Course).** An examination of the problems and techniques of estate planning and administration, including the income taxation of trusts and estates. Students prepare planning recommendations and draft related documents for hypothetical clients. Prerequisites: Basic Federal Income Taxation, Corporate Taxation (can be taken concurrently); Estate and Gift Taxation and Trusts and Estates. (Not offered 1989-90.)

**335. Family Law.** A study of legal issues relating to the family, including marriage, unmarried cohabitation, divorce, procreation and abortion, child custody, and the relationship between parent, child, and state. 3 s.h. fall. *Lewis*

**529. Feminist Legal Theory (Seminar).** Selected topics in feminist legal theory, with a focus on its application to child custody law. 2 s.h. fall. *Bartlett*

**270. Trusts and Estates.** An examination of noncommercial property dispositions, both testamentary and *inter vivos*, including the following topics: intestate succession, wills and will substitutes; creation and characteristics of trusts; powers of appointment; problems in trust and estate administration. 4 s.h. spring. *Adams*

### IV. FOREIGN AND INTERNATIONAL LAW

**290 & 291. Introduction to American Law for International Students.** This course consists of two components. The first (290) is a series of lectures by members of the Law School faculty on various aspects of the legal system of the United States and may include re-

quired readings. It concludes with an examination. 1 s.h. fall. *Dibble*.

The second (291) is in the form of a research and writing tutorial designed to introduce international students to the techniques of case and statutory analysis as well as the tools and methods of legal research. Students are expected to complete written assignments and memoranda of law. 2 s.h. fall. *Dibble*

**513. Chinese Legal History (Seminar).** This course will survey Chinese legal thought and practice in the People's Republic of China. Particular attention is focused on the relation of law to social ideals, to social change, and to politics. The course will consider socialist theories of law, conventional criminal and civil processes, informal and extrajudicial institutions, international law, and trade law. Prior familiarity with Chinese history or politics is unnecessary. 2 s.h. spring. *Ocko*

**649. Civil Law Research (Tutorial).** This tutorial will give students the opportunity to familiarize themselves with civil law materials while studying aspects of civil law in a comparative law perspective. A substantial research project will require the use of original language materials. The technique of comparative law analysis will be discussed. Insight will be provided into both the thinking and institutions found in legal systems based upon systematic codes and legal traditions that are different from those in the common law countries. Prerequisites: Comparative Law: Western Legal Traditions; reading knowledge of French or German. 2 s.h. fall. *Germain*

**306. Comparative Administrative Law (Seminar).** An introduction to the comparative study of the major systems of administrative law in the West. This seminar is designed to introduce students to public law institutions and practices in systems substantially different from their own, to relate this knowledge to American law in order to enhance the student's understanding of the latter, and to place the rules and institutions of administrative law within their broader political, social, and ideological contexts. It will commence with an introduction to comparative methodology in the public law context. The second part comprises a macro-survey of the British, French, American, German, and Australian systems. Finally some specific topics will be selected for more detailed, micro-comparison. Prerequisites: Prior enrollment in Administrative Law (American or foreign). (Not offered 1989-90.)

**307. Comparative Law: Common Law Traditions (Seminar).** This course will focus on different approaches to law in England and America, as well as differences in their traditional legal theories. In particular, it will explore the more formal approach to law in England in connection with differences in legal sources, common law, and statute law. This course will then explore the relationship between these differences and some of the institutional differences between the courts, the judges, the legal professions, and the law schools in the two countries. There are no prescribed texts but course materials will be available. (Not offered 1989-90.)

**305. Comparative Law: Western Legal Traditions.** A study of civil law, common law, and socialist law, focusing on legal institutions, legal actors, their roles and backgrounds. This course will examine the shared Western legal and intellectual heritage and analyze selected problem areas. 3 s.h. spring. *Bernstein*

**572. Comparative Public Law and Policy: Ethnic Group Relations (Seminar).** An interdisciplinary seminar to appraise various approaches to the reduction of conflict in deeply-divided societies, primarily in Asia and Africa. Substantial attention will be paid first to the nature of ethnic identity, the sources of group conflict, and the forms and patterns it takes. Consideration will be given to methods of analyzing social science materials and utilizing them for the design of policies, laws, and institutions. Approaches considered include federalism, regional autonomy, electoral law, parliamentary and presidential arrangements, and programs to prefer under-represented ethnic groups in

education, employment, and other spheres of economic activity. Emphasis will be placed on forecasting and evaluating the impact of alternative approaches. (Not offered 1989-90.)

**233. European Economic Community Law.** After a brief introduction to the institutions of the Community, with emphasis on the jurisdiction of the Court of Justice, the basic principles of the Community legal system will be examined. This will particularly include a discussion of the relationship between Community law and the legal systems of the member-states (the principles of immediate applicability and primacy of Community law). Several topics of substantive Community law will also be examined, including the free movement of goods, persons, services, and capital; the right of establishment; state subsidies; and the Community common commercial policy, including antidumping measures. The course will also cover similarities and differences between the American federal and European Community systems. 2 s.h. spring. *Usher*

**102. German for Legal Studies.** An introduction to the terminology and basic concepts of German law. Reading and analysis of legal texts (codes, cases, contracts, wills). Communication about law and law-related issues in German. Prerequisites: 3 semesters or equivalent of German, consent of instructors. 2 s.h. spring. *Bernstein and Bernstein*

**345. International Business Transactions.** This course examines various topics related to the conduct of international business. Subjects covered are international private trade, including private international contracts, dispute resolution, and letters of credit; national and international regulation of trade in goods, including the GATT; international regulation of monetary affairs through the IMF; foreign direct investment; and transfer of technology. (Students who took the International Trade Seminar from Professor Gann in the spring 1989 semester may take the nontrade-law portion of this course for 1 s.h. credit.) 3 s.h. fall. *Gann and Hillman*

**494. International Litigation.** An examination of problems arising in litigation brought in federal courts by or against foreign nationals. Topics will include: (1) personal jurisdiction over foreign defendants; (2) service of process abroad; (3) forum non conveniens; (4) antitrust injunctions; (5) subject matter jurisdiction in international litigation; (6) foreign sovereign immunity; (7) forum selection clauses; (8) international arbitration; (9) taking evidence abroad; and (10) recognition and enforcement of foreign judgments. Enrollment is limited to twenty-four students. 2 s.h. fall. *Carrington*

**598. International Transactions with Japan (Clinical Seminar).** An examination of the lawyer's role as a negotiator in seeking to resolve legal disputes with Japanese companies. This course focuses on the techniques and tactics that one encounters in negotiations with large multinational Japanese companies. The students will form a team which seeks to negotiate a settlement with a student team at the University of Tokyo in a simulated dispute involving a commercial transaction between an American company and a Japanese company. Enrollment is limited to seven students with the permission of the instructor. 2 s.h. fall. *Luney*

**599. International Transactions with China (Clinical Seminar).** This course examines various topics related to the conduct of international business transactions with China. Subjects covered are negotiation, contracts, dispute resolution, letters of credit, and Chinese regulation of international trade. 2 s.h. fall. *Gao*

**230. International Law.** An introduction to the public international law of peace, including the nature and sources of international law; its place in national and international decision making; the roles of international organizations, states, and individuals in the international legal system; bases and limitations of jurisdiction; the utilization and interpretation of treaties and other international agreements; and some aspects of the regulation of economic activity within the international system. 3 s.h. fall. *Lapidoth*



**232. International Organizations.** An examination of the legal issues involved in the structure, functions, and operations of the United Nations and other international organizations within the international system. (Not offered 1989-90.)

**557. International Taxation (Seminar).** An examination of the federal income tax imposed on income earned in foreign countries either by citizens and residents of the United States or by foreign corporations that are controlled by citizens and residents of the United States. This course also includes a study of the federal income tax imposed on nonresident aliens and foreign corporations on their income derived from United States sources. Prerequisites: Personal Income Taxation, Corporate Taxation (may be taken concurrently), or permission of the instructor. 2 s.h. spring. *Gann*

**647. Japanese Environmental Law and Dispute Resolution.** A study of major policy and legal issues addressed by Japan in its efforts to correct environmental problems. Emphasis is on the legal, economic, social, and political factors that underlie the different responses to dispute resolution of environmental conflicts in Japan. (Not offered 1989-90.)

**366. Jewish Law (Seminar).** Study of factors (cultural and juristic) in the development of Jewish law, especially in the Talmudic and medieval periods; relationship between "religious" and "civil" law; the legal codes and the decision-making process of the rabbinic courts. Some legal texts (in translation) will be submitted to intensive examination. 2 s.h. fall. *Golding*

**235. Jurisprudence.** A historical examination of the development of legal philosophy from ancient times to the contemporary period. 3 s.h. fall. *Christie*

**640. Law and National Security (Seminar).** A study of military jurisdiction; martial law; law of war; civil court review of military actions; power of commanders over military installations; status of forces agreements; operations law; antiterrorist measures and legislative process. 2 s.h. spring. *Everett*

**620. Law of the Sea (Seminar).** An examination of the legal problems resulting from uses of the seas and the efforts made toward resolution of those problems. This seminar's focus is on the jurisdictional problems created by the competing claims of nation-states to competence as to the territorial sea, the continental shelf, the contiguous zone, economic zones, and the seabed. These claims are examined in the context of specific uses of the seas, including navigation, military, fishing, extraction of minerals, and scientific research. Prerequisite: International Law (may be taken concurrently). 2 s.h. fall. *Lapidoth*

**516. Political Philosophy and Law (Seminar).** The seminar will analyze the relationships between political theory and the law in contemporary philosophy. Authors such as Strauss, Arendt, Foucault, Habermas and others will be studied in this context. The discussions in the seminar will be related to an abstract theoretical framework and to concrete contemporary legal and political issues. The seminar will meet during the first five weeks of the semester. A paper on an assigned topic will be the basis for the grade. The seminar should be of special interest to students in the International and Comparative Law and Philosophy joint degree programs. 2 s.h. fall. *Haarscher*

## V. LEGAL THEORY AND HISTORY

**415. American Legal History.** A study of the development of American public and private law from the colonial period to the present. Examination. (Not offered 1989-90.)

**513. Chinese Legal History (Seminar).** This course will survey Chinese legal thought and practice in the People's Republic of China. Particular attention is focused on the relation of law to social ideals, to social change, and to politics. The course will consider socialist theories of law, conventional criminal and civil processes, informal and extrajudicial institutions, international law, and trade law. Prior familiarity with Chinese history or politics is unnecessary. 2 s.h. spring. *Ocko*

**514. Chinese Law and Society (Seminar).** This course will survey Chinese legal thought and practice in the People's Republic of China. Particular attention is focused on the relation of law to social ideals, to social change, and to politics. The course will consider socialist theories of law, extrajudicial institutions, international law, and trade law. Prior familiarity with Chinese history or politics is unnecessary. (Not offered 1989-90.)

**306. Comparative Administrative Law (Seminar).** An introduction to the comparative study of the major systems of administrative law in the West. This seminar is designed to introduce students to public law institutions and practices in systems substantially different from their own, to relate this knowledge to American law in order to enhance the student's understanding of the latter, and to place the rules and institutions of administrative law within their broader political, social and ideological contexts. It will commence with an introduction to comparative methodology in the public law context. The second part comprises a macro-survey of the British, French, American, German, and Australian systems. Finally some specific topics will be selected for more detailed, micro-comparison. Prerequisites: Prior or concurrent enrollment in Administrative Law (American or foreign). (Not offered 1989- 90.)

**307. Comparative Law: Common Law Traditions (Seminar).** This course will focus on different approaches to law in England and America, as well as differences in their traditional legal theories. In particular, it will explore the more formal approach to law in England in connection with differences in legal sources, common law, and statute law. This course will then explore the relationship between these differences and some of the institutional differences between the courts, the judges, the legal professions, and the law schools in the two countries. There are no prescribed texts but course materials will be available. (Not offered 1989-90.)

**305. Comparative Law: Western Legal Traditions.** A study of civil law, common law, and socialist law, focusing on legal institutions, legal actors, their roles and backgrounds. This course will examine the shared Western legal and intellectual heritage and analyze selected problem areas. 3 s.h. spring. *Bernstein*

**572. Comparative Public Law and Policy: Ethnic Group Relations (Seminar).** An interdisciplinary seminar to appraise various approaches to the reduction of conflict in deeply-divided societies, primarily in Asia and Africa. Substantial attention will be paid first to the nature of ethnic identity, the sources of group conflict, and the forms and patterns it takes. Consideration will be given to methods of analyzing social science materials and utilizing them for the design of policies, laws, and institutions. Approaches considered include federalism, regional autonomy, electoral law, parliamentary and presidential arrangements, and programs to prefer under-represented ethnic groups in education, employment, and other spheres of economic activity. Emphasis will be placed on forecasting and evaluating the impact of alternative approaches. (Not offered 1989-90.)

**550. Constitutional History.** A three-part course, the first part is devoted to the Constitution's early history. The second part focuses on the institutions of slavery and the law before and after the Civil War. The third part focuses on the New Deal and its relations with the Supreme Court. 2 s.h. fall, 2 s.h. spring. *Dellinger, Leuchtenburg, and Franklin*

**359. Economic Analysis of the Law.** An exploration of diverse topics in law and economics such as property rights and externalities, tort law and optimal accident prevention, use of economics by the courts, the economics of contracts, and theories of economic justice. 3 s.h. spring. *Culp*

**589. Economic Analysis of Patent Law (Seminar).** This seminar will draw upon concepts from microeconomic theory to explore policy issues relevant to the design and implementation of an efficient patent system. A substantial portion of this seminar will be devoted to an examination of the conflict between antitrust law and patent law concern-

ing the terms of patent licenses. Other topics to be studied include: the litigation and settlement of infringement suits, a comparison of trade secret law with patent law, and the scope of the disclosure requirement attendant to the patent grant. Our inquiry will emphasize consideration of the effect of patent institutions on the incentive to undertake research and development, and the costs to society of providing that incentive.

The necessary economic theory will be developed in the seminar, but a background in economics would certainly be helpful. Prerequisites: Antitrust law or intellectual property law, joint degree program in law and economics, or permission of the instructor. (Not offered 1989-90.)

**594. Interpretive Theory in the Legal and Literary Academies (Seminar).** This seminar will explore a number of related issues as they work themselves out in the course of legal theory from 1962 (Hart's *The Concept of Law*) to the present day. In addition to readings in legal theory there will be extensive consideration of seminal works in other disciplines: J. L. Austin's *How To Do Things with Words*, Michel Foucault's *The History of Sexuality*, Jacques Derrida's "Differance," Thomas Kuhn's *The Structure of Scientific Revolutions*, and shorter readings from the works of Terry Eagleton, Edward Said, E. D. Hirsch, Richard Bernstein, and Richard Rorty. Problems and issues to be discussed will include formalism, conventionalism, intentionalism, the nature of interpretive constraint, the role of rule in law, the relationship between theory and practice, the distinction between policy and principle and between law and power, and the opposition between rhetoric and principled argument. Readings in legal theory will include works by H. L. A. Hart, Lon Fuller, Ronald Dworkin, Michael Moore, Owen Fiss, Roberto Unger, Duncan Kennedy, Mark Kelman, Thomas Heller, James Boyle, Claire Dalton, and Robert Gordon. This course will move toward consideration of the critical legal studies movement and of the emerging feminist jurisprudence. (Not offered 1989-90.)

**366. Jewish Law (Seminar).** Study of factors (cultural and juristic) in the development of Jewish law, especially in the Talmudic and medieval periods; relationship between "religious" and "civil" law; the legal codes and the decision-making process of the rabbinic courts. Some legal texts (in translation) will be submitted to intensive examination. 2 s. h. fall. *Golding*

**235. Jurisprudence.** A historical examination of the development of legal philosophy from ancient times to the contemporary period. 3 s. h. fall. *Christie*

**501. Legal Theory: The Critical Legal Studies Movement (Seminar).** This seminar will examine the arguments and proposals of the critical legal studies movement which in less than a decade has mounted an unprecedentedly severe attack on the legal establishment. The seminar will inquire first into the history of the movement and glance at the tradition of legal realism from which some say it derives. The seminar will then analyze key texts in the movement's emerging canon, noting both the structure of their arguments and the relation of those arguments to the disciplines from which they are taken: philosophy, literary criticism, feminist studies, anthropology, etc. Attention will also be paid to variants of the movement in other countries and a special focus will be the uneasy affiliation of the movement with some strains of feminism. Finally the seminar will attempt to clarify the issue that more than any other is at the heart of the contemporary debate, whether or not the critique offered by critical legal studies can be transformed into a positive project. Seminar members will be encouraged to write papers on areas of the law in which they are particularly interested. 3 s. h. fall. *S. Fish*

**527. Medical-Legal-Ethical Issues (Interdisciplinary Seminar).** A seminar composed of students and faculty from the Medical, Law, and Divinity Schools that will critically consider selected pertinent issues of mutual professional interest. 2 s. h. spring. *Gianturco (medicine), Shimm (law), and H. Smith (divinity)*

**535. Philosophy of Law (Seminar).** This seminar will deal with four varieties of "natural jurisprudence": Adam Smith (*Lectures on Jurisprudence*), Lon Fuller (*Principles of Social Order*), Ronald Dworkin (*Law's Empire*), and John Finnis (*Natural Rights and Natural Law*). Brief weekly reports and a term paper are required. 2 s.h. spring. *Golding*

**516. Political Philosophy and Law (Seminar).** The seminar will analyze the relationships between political theory and the law in contemporary philosophy. Authors such as Strauss, Arendt, Foucault, Habermas and others will be studied in this context. The discussions in the seminar will be related to an abstract theoretical framework and to concrete contemporary legal and political issues. The seminar will meet during the first five weeks of the semester. A paper on an assigned topic will be the basis for the grade. The seminar should be of special interest to students in the International and Comparative Law and Philosophy joint degree programs. 2. s.h. fall. *Haarscher*

**556. Responsibility in Law and Morals (Seminar).** Investigation of the relationship between responsibility in the law and moral blameworthiness; excuses and defenses; the roles of such concepts as act, intention, motive, ignorance, and causation. Texts: Holmes, *The Common Law*; Hart, *Punishment and Responsibility*; Morris, *Freedom and Responsibility*. (Not offered 1989-90.)

**316. Rights and the Environment (Seminar).** This course will be a critical examination on how several philosophical and jurisprudential traditions address the issues of environmental quality and resource depletion. The traditions to be examined will include utilitarianism, Kantianism, the land ethic of Aldo Leopold, and the Aristotelian emphasis on virtue and character. A paper exploring specific issues within one or more such traditions will be required. (Not offered 1989-90.)

**561. Theological Dimensions of the Law (Seminar).** A legal system inevitably overlaps with systems of belief and value, usually but not always termed religious, which claim to provide an ultimately valid construction of reality and a finally determinative set of values. Historically, most cultures have recognized this overlap by enlisting the law as a servant of religion and/or by invoking religion as the underlying justification for the law. It is arguable that the United States has attempted to do neither. This course will examine Western religious and theological reflections on the nature and legitimacy of law and politics and on the appropriate course requirements through a variety of means including essays, short reflection papers, long papers, and class presentations. 3 s.h. spring. *Powell*

**648. U.S. Fourth Circuit History (Tutorial).** Research for the bicentennial history of the United States courts of the Fourth Circuit from 1789 to the present. Individual research and group discussion on the development of judicial institutions and research law in this southern circuit. 3-6 s.h. fall and spring. *P. Fish*

## INDEPENDENT RESEARCH

Law students in their second and third year of the J.D. or LL.B. programs may undertake up to four semester-hours of independent research in any academic year if the research is approved by a faculty member. Research will be graded on a credit/fail basis. Students undertaking independent research will meet regularly with the faculty member supervising the research in order to ensure contemporaneous discussion, review, and evaluation of the research experience.

## AD HOC SEMINARS

A group of five or more students may plan and conduct their own research and seminar program for not more than two semester-hours of credit (which shall be considered to be independent research within the meaning of the maximum limitation of four semester-hours of independent research each year). A request to establish such an ad hoc

seminar should be addressed to the Dean at least two months before the end of the semester preceding the semester in which the seminar is proposed and contain an outline of coverage and required readings. The Dean will request a member of the faculty to evaluate the program and determine whether the proposed program has academic merit. If approved by the Dean, a faculty member will be requested to evaluate the contribution of each participant before awarding credit. A written paper of the kind generally submitted in seminars will be required of each participant. Such seminar work shall be graded on a credit/fail basis.

#### **COURSES IN OTHER DIVISIONS OF THE UNIVERSITY**

Second- and third-year students other than joint degree candidates may take courses offered in other divisions of the University. Credit (limited to a total of six semester hours or nine semester hours with special approval) toward the J.D. degree will be granted for courses of suitable academic rigor in which the student earns a grade of C (or its equivalent) or better. A written request for permission to enroll in a University course outside the Law School must be presented to the Associate Dean for Student Affairs. The actual grade earned in the course will be made a part of the student's permanent record, but will not enter into the Law School grade point average unless the student receives a failing grade.

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*Degree Programs*



## The First Professional Degree in Law

**Juris Doctor.** Upon favorable recommendation of the faculty, the degree of Doctor of Law (J.D.) will be conferred upon students who have successfully completed six semesters of law study in residence at Duke. Two semesters of law study undertaken at another accredited American law school may be counted toward the required total if the final two semesters (exclusive of a summer session) and a minimum of fifty-five semester-hours of law study are undertaken at Duke.

Students shall be deemed successfully to have completed six semesters of law study if, during a minimum of ninety academic weeks, they have satisfied the following requirements:

1. a passing grade in courses aggregating eighty-six semester-hours; and
2. a grade-point average of at least 2.1 on a 4.5 scale and status in good standing under the rules of the Law School.

**Bachelor of Laws Degree.** Upon favorable recommendation of the faculty, the degree of Bachelor of Law (LL.B.) will be conferred upon students who have satisfied all of the requirements listed above as necessary for the Doctor of Law degree but who do not possess a baccalaureate degree prior to completion of the program of study for the Doctor of Law degree.

## Joint Degrees for Enrichment: Summer Programs

**Master of Arts for Law Students.** The School of Law and the Graduate School of Duke University jointly sponsor a program of study in law and several alternative disciplines, including economics, history, philosophy, political science, public policy science, and an interdisciplinary program in the humanities. The purpose of the program is to encourage the broader intellectual interests of law students and to foster dialogue between law and related disciplines. It is intended in part as an antidote for narrowing careerism that sometimes overtakes professional education. Upon satisfactory completion of the required course of study, candidates will be awarded both the M.A. and J.D. degrees.

Students enter the program in the summer prior to the first year of Law School, undertaking a portion of the first-year law curriculum. Throughout their remaining six semesters in residence, students will combine their legal studies with courses selected from the Graduate School curriculum, taking two Graduate School courses per semester during the first year and four more Graduate School courses in the final four semesters.

**Master of Laws (Foreign and International Law).** Since 1985, the Law School has offered the opportunity to selected J.D. candidates to pursue a Master of Laws degree emphasizing international and comparative law study contemporaneously with their study for the J.D. degree. Students accepted to the program will enter in the summer, undertaking a portion of the regular first-year curriculum with students who are pursuing the joint J.D./M.A. program described above. During the remaining six semesters of law study and in a four-week period of study at Duke's Institute of Transnational Law in Denmark during the summer after their first year of Law School, J.D./LL.M. students will complete requirements for both degrees. The courses selected for application toward the LL.M. will consist primarily of international-, comparative-, and foreign-law courses at the Law School and at the Institute of Transnational Law but may also include courses taken in related fields in other divisions of the University. The area studies program at Duke is particularly rich in courses dealing with Canada, China, Germany, and Japan.

Candidates for the LL.M. degree will be required to complete twenty credit hours of approved courses, including a significant written product, with a minimum grade point average of 2.5. Students must also demonstrate competency in at least one foreign language. Six of the twenty hours required for the LL.M. may be taken in the Graduate School or in upper-level undergraduate course work, including advanced language study; six additional nonlaw hours (nine with special permission of the dean) are permitted to be applied toward the J.D. degree.

## Advanced Professional Degrees in Law

The Law School program is primarily designed to serve students seeking a first professional degree in American law. Except for international students and participants in the J.D./LL.M. program described above, students are rarely admitted for the purpose of continuing the study of law at the master's or doctoral levels, although the faculty is empowered to authorize such admissions. Applications for such study by American graduates of American law schools are not sought. International students should consult the chapter of this bulletin addressed to them.

**Master of Laws (LL.M.).** Most international students seek the master's degree, having already been trained in the law of their own countries. To qualify for this degree, the student must successfully complete two semesters of study in residence, and must complete no fewer than twenty-one semester-hours. Included in the twenty-one credits of work must be at least two credits of individual written work completed either in a seminar or in an independent study course supervised by a faculty member. Students are also required to take a first-year course, which will bring them into close contact with a small group of American students who are facing similar academic challenges. Most foreign students will be expected to enroll in the two-credit course, Introduction to American Law for International Students.

The remainder of the academic program is individually selected by the student from the curriculum offerings for first-year and upperclass students. International students will attend classes with American students and will participate in the same grading procedures. All international students will receive the guidance of an individually assigned academic adviser who is a faculty member at the Law School. The degree will be granted to students who achieve a grade point average of 2.5 on a 4.5 scale by the end of the academic year. Candidates are expected to complete the LL.M. degree in one year except in exceptional circumstances.

**Doctor of Juridical Science (S.J.D.).** Duke Law School accepts very few applications for the S.J.D. degree. Foreign students who have already earned a degree in American law at the master's level may apply for admission to the S.J.D. degree, however. Only students who have achieved excellent academic records throughout their law study and, in particular during the master's degree program, should seek admission. It is expected





that S.J.D. candidates will be able to conduct original research and will produce a thesis that makes a contribution to legal scholarship.

Applicants to the S.J.D. program should submit all materials promptly. In order to evaluate the application, it is necessary for Duke Law School to have a proposal for the doctoral thesis and at least one sample of written work, such as a completed seminar paper. References from professors who have taught applicants at the master's level should also be provided. A transcript of all courses completed at the master's level must be received before consideration can be given to an applicant. At the discretion of the Curriculum Committee, candidates may be required to complete one or more semesters of course work before beginning the doctoral thesis. The program will take from two to three years to complete, depending on the time required to write the doctoral thesis.

## Other Professional Degrees for Lawyers

**Master of Business Administration.** The School of Law and Duke's Fuqua School of Business have established a combined program of studies in law and graduate-level business administration. The aim of the program is to provide a small number of selected individuals with the opportunity to acquire an education in both law and business administration in a four-year course of closely integrated study in the two fields. Upon satisfactory completion of the required course of study, candidates will be awarded both the M.B.A. and the J.D. degrees.

The student in the M.B.A.-J.D. program begins the first-year course of study in either the Fuqua School of Business or the School of Law. If the student begins in the Law School, the first-year curriculum is the same as that of other law students; if the student begins in the Business School, the first-year curriculum is the same as that of other graduate business students. The student's second year consists of the full first-year program of the other school. In the third and fourth years of the program, the student takes a mix of courses in both schools, but mainly in the Law School.

**Master of Arts in Public Policy Sciences.** The School of Law and the Institute of Policy Sciences and Public Affairs of Duke University have established a combined program of studies in law and graduate-level policy sciences. The aim of the program is to provide an opportunity for students to acquire decision-making skills and substantive policy knowledge that would be useful in either career or citizen roles dealing with problems of the public sector. Upon satisfactory completion of the required course of study, candidates will be awarded both the M.A.P.P.S. and the J.D. degrees.

The combined program requires completion of seven or eight academic semesters and one summer internship. The first year is spent exclusively in the Law School pursuing the same course of study as do other first-year law students; the second year exclusively in the Institute of Policy Sciences; and the third and fourth years primarily in the Law School. In addition, the student must select a substantive policy area in which to concentrate from among the fields of the administration of justice, communications policy, health policy, and education policy; a summer internship and thesis will be required in the chosen area. Since 1985, students also have the option of pursuing the M.A.P.P.S. through participation in the summer-entering program described above, although the institute prefers that students enroll in the seven- or eight-semester program.

**Doctor of Medicine.** The School of Law and the School of Medicine of Duke University jointly sponsor a program of combined legal and medical education. The program provides an opportunity to acquire a full basic study of the two fields. Upon satisfactory completion of the required course of study, candidates will be awarded both the J.D. and M.D. degrees.

The student in the M.D.-J.D. program begins a six-year course of study in the School of Medicine. As in the regular M.D. program, the first year is devoted to the basic medical sciences, and the second year to the basic clinical disciplines. At this point, the student

usually enters the Law School, where the first-year curriculum is the same as that of other law students. During the next three or four semesters, the student may select courses in the Law School that are of special application to medical-legal interests. After completing law requirements, the student returns to the Medical School for elective clinical work tailored to the student's specialized needs. In addition, eighteen semester-hours, or two summer sessions, of elective basic science work are required.

**Master of Health Administration.** The School of Law and the Department of Health Administration have established a combined program of studies in law and health administration. The aim of the program is to provide interested persons with the opportunity to acquire an education in both law and health administration in an integrated four-year course of study in the two fields. Upon satisfactory completion of the required course of study, candidates will be awarded both the M.H.A. and the J.D. degrees.

The student in the M.H.A.-J.D. program, after completing the first two semesters of the basic M.H.A. program, enters the Law School, where the first-year curriculum is the same as that of other law students. In the third and fourth years of the program, the student continues in the Law School, completing requirements for the law degree, including two electives approved by the Department of Health Administration, and takes ten more semester-hours of M.H.A. course work. In the Law School, the student is encouraged to emphasize courses relating to public law and administration. Opportunities for special activities in health law will be made available to the student by the Department of Health Administration over the course of the program.

## The Secondary Degree in Law

### MASTER OF LEGAL STUDIES

Upon favorable recommendation of the faculty, the degree of Master of Legal Studies (M.L.S.) will be conferred upon students who have successfully completed a one-year program of study in the Law School. Students specifically admitted to candidacy for this degree will pursue an individually designed curriculum including both first-year and upperclass courses. The degree may also be awarded to J.D. candidates who meet its requirements and who decide to abandon the study of law.

Students will be deemed successfully to have completed a one-year program of study in the Law School if, during a minimum of thirty academic weeks, they have satisfied the following requirements:

1. a passing grade in Law School courses aggregating thirty semester-hours, excluding cross-listed courses, and including at least one course requiring substantial supervised writing, and
2. a grade-point average of at least 2.3 on a 4.5 scale and status in good standing under the rules of the Law School.

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*Beyond the Curriculum*



## Publications

**Law and Contemporary Problems.** Since 1933, the Law School has published the quarterly, *Law and Contemporary Problems*. The journal is distinctive among professional legal publications in both its format and its content. Each issue is devoted to papers from a symposium on a particular topic of contemporary interest. These topics often reflect an interdisciplinary perspective with contributions by lawyers, economists, social scientists, scholars in other disciplines, and public officials.

The journal is widely distributed; and its subscribers include general university libraries, governmental agencies, and foreign educational institutions, as well as the more traditional law libraries and law firms. *Law and Contemporary Problems* is monitored by a general editor, who teaches editing skill, and a faculty advisory committee.

About twenty-four upperclass law students serve on the staff of this publication. They are responsible for editorial work on the symposia. Ten second-year students are selected each year on the basis of their first-year grades and the evaluations of their first-year tutorial instructors. About five new third-year students are selected on the basis of grades as well as a writing program.

**Duke Law Journal.** The Law School publishes the *Duke Law Journal* six times a year. Edited by students, the *Journal* is among the most prestigious and influential legal publications in the country. Approximately one-third of the contents of each issue consists of student notes dealing with current legal developments; the balance is devoted to articles and comments by professors and practitioners. Full responsibility for the selection and editing of material is vested in the *Journal's* student editorial board and its elected officers.

Membership on the *Journal* is achieved in one of two ways. Several students are selected on the basis of outstanding performance during their first year of law school. Additionally, rising second-year students (including those transferring to Duke from other schools) may participate in a writing program; participants demonstrating exceptional writing ability are invited to become members of the *Journal*.

Each year one *Journal* issue is devoted to topics in administrative law. Subjects of recent articles and notes reflect both the variety and depth of current legal thought. Recent issues have included articles on judicialization, use of legislative histories, and a symposium on legal education.

**Alaska Law Review.** Since 1983-84, Duke Law School has published the *Alaska Law Review*. Alaska has the highest number of lawyers per capita of any American state, and a range of cutting edge legal issues in the areas of natural resources law, environmental law, land use planning, economic development, state-federal relations, and Native

American rights. Since Alaska has no law school, Duke agreed with the Alaska Bar Association to provide a professional journal of law responsive to the needs of Alaska's diverse legal community.

The *Alaska Law Review* is supervised by an advisory committee consisting of members of the Duke Law faculty and representatives of the Alaska Bar Association, but the student editors have primary responsibility for writing, editing, and managing the *Review*. Twelve students are chosen as editors out of each rising second-year class on the basis of first-year grades and the recommendations of the first-year writing instructors.

Student notes form the bulk of the material in the *Review*, which is published semi-annually. The articles and student notes focus on topics of interest to the practicing attorney in Alaska.

## Honorary, Professional, and Social Organizations

**Order of the Coif.** The Order of the Coif is a national legal scholarship society with a local chapter at Duke University School of Law. Its purposes are "to foster a spirit of careful study and to mark in a fitting manner those who have attained a high grade of scholarship." Election is restricted to students standing scholastically in the highest 10 percent of the graduating class.

**The Duke Bar Association.** The Duke Bar Association coordinates the professional, social, and other extracurricular activities of the student body. The association resembles in its composition and purpose both a university student government and a professional bar association. It takes care of student grievances and serves as a mediator between students, faculty, and the administration. The association oversees all student organizations, publicizes Law School activities, sponsors athletic and social programs, and disburses its dues funds among the school's organizations.

**Legal Research Program.** The Legal Research Program, supervised by a student editorial board, provides second- and third-year students with an opportunity to prepare legal memoranda on actual problems submitted by practicing lawyers, judges, or legislative committees.

**Moot Court Board.** The Moot Court Board is composed of second- and third-year students who are chosen on the basis of their performances in intramural moot court competition. The board supervises the Hardt Cup and the Dean's Cup Competitions. Beginning in 1989-90, the board will administer the Rabbi Seymour Siegel Moot Court Competition, an interscholastic competition devoted to medical and legal ethics. In addition, the board provides personnel for teams entering intercollegiate competition.

**International Law Society.** Membership in the Duke International Law Society is open to the entire law student body. The society sponsors an annual distinguished speaker series with lecture topics ranging from the law of warfare to peace negotiations, from the law of the seas to space law. The scope is limited only by the interests of the society members and the student body at large. The society is currently exploring joint programs with local law schools, overseas study alternatives, and contributorships to international law journals throughout the country. Other activities include participation in the annual Philip C. Jessup International Moot Court Competition and attendance at conferences sponsored by the Association of Student International Law Societies.

**Women Law Students Association.** Women Law Students Association provides a central organization through which women law students can meet to form friendships and to share problems unique to women in the legal profession. The group works as a clearinghouse for information in areas of particular concern to women through bulletin board notices and informal presentations at faculty-student receptions. The group also communicates with women's groups in other law schools in North Carolina, maintains memberships in several state and national organizations, and teaches an undergraduate course on women and the law.

Current and prospective women law students are encouraged to contact members of the Women Law Students Association for information about the organization, Duke Law School, or the legal profession.

**Deans' Advisory Council.** Members of the Deans' Advisory Council are selected by the several deans of the Law School. Selection for membership reflects the collective judgment of the deans that the student is unusually deserving of trust and respect, and manifests traits for which the school would like to be known. The work of the council is to assist the administration of the Law School in its public contacts. Members represent the school in dealing with admissions applicants, placement interviewers, alumni, supporters, and guests. Membership in the organization generally continues after graduation; alumni members continue to assist in the same areas of administrative work. Membership involves a substantial commitment of time and energy to the welfare of the school.

**Black Law Students Association.** The Law School chapter of BLSA is affiliated with the regional and the national BLSA. The aims of the local chapter are to provide a responsive student organization to aid the individual black law student at Duke and to instill a greater awareness of and commitment to the needs of the black community.

**American Bar Association's Law Student Division.** The ABA/LSD, active in virtually every law school in the country, is the way for law students to make contact with the nation's largest professional association for lawyers, the American Bar Association. A member of the Fourth Circuit, along with the law schools of Virginia, West Virginia, and North and South Carolina, Duke has played a strong leadership role in the circuit as well as at the national level of the division. A small enrollment fee entitles the Law Student Division member to a subscription to the ABA magazine *Student Lawyer*, to inexpensive ABA-sponsored health insurance, and to information about the ABA's programs and publications on specialized areas of the law. The ABA/LSD also promotes various advocacy and essay contests throughout the school year.

**Forum for Legal Alternatives.** The FLA is made up of students from all three classes who are interested in information about less traditional legal careers. In the past few years the FLA has brought lawyers to the Law School to speak on legal services, environmental law, union labor law, child advocacy, government work, and setting up a solo practice after law school. The group works with the Placement Office to provide information on employment opportunities in the public interest fields and maintains contacts with the North Carolina chapter of the National Lawyers' Guild and other public interest and civil rights groups in the area. As a respite from its serious work, the FLA has a potluck dinner each semester.

**Student Funded Fellowship.** The SFF provides living-expense stipends to several students each year who work in nontraditional or public interest legal jobs. Law students and members of the faculty and administration contribute to the SFF. The fund is then allocated to recipients by the fellowship's Board of Directors.

**Volunteer Income Tax Assistance.** For many years law student volunteers have provided tax preparation assistance to low-income people in the community. Two or more sites in Durham are staffed by the Law School for eight weeks prior to the tax filing deadline.

**Prisoners Rights Project.** The PRP is a volunteer organization of law students. Its goals include educating prisoners about the law and criminal procedure, promoting their rights to humane conditions, and assisting them in preparing postconviction motions. Volunteers answer prisoner questions about court procedure, sentencing classification, privileges, discipline, medical care, and conditions of confinement generally.

**National Lawyers' Guild, Student Chapter.** The National Lawyers' Guild is an organization of lawyers, legal workers, law students, and jailhouse workers with over 7,000 members in the 97 chapters throughout the United States. The guild was founded in 1937 as a multi-racial and progressive alternative to the American Bar Association.

Duke's student chapter aims to educate its members and the Duke University community about the most significant battles for political, economic, and social change. The group opposes all forms of racial and sexual discrimination. The guild plans to hold forums and workshops on a wide range of social issues.

**Federalist Society.** The Duke chapter of the Federalist Society is a group of conservative and libertarian students interested in the current state of legal order. The society is founded on the principles that the state exists to preserve freedom, that the separation of governmental powers is central to our Constitution, and that it is the province and duty of the judiciary to say what the law is, not what it should be. The society seeks both to promote an awareness of these principles and to further their application through its activities. In the past, the group has hosted distinguished judges and other speakers and has sponsored debates between members of the academic community. Membership is open to interested students.

## Entertainment and Recreation

Various recreational facilities are available on campus to students. The Bryan Center contains the Reynolds Theater and the Schaefer Laboratory Theater, as well as a film theater, an art gallery, banquet rooms which are available to students at minimal cost, and lounges and patios for student meetings.

Students of the Law School are also entitled to use the University gymnasiums, tennis courts, swimming pools, golf course, and other facilities. Within a short distance from the campus one may enjoy horseback riding, woodland hiking, and sailing. Other opportunities for physical activity are available in the intramural program, as well as through such activity groups as the outing, sailing, and cycling clubs. North Carolina's mild climate makes most outdoor sports possible during much of the school year. The Appalachian ski slopes are about three and a half hours to the west, the Outer Banks the same distance to the east.

University athletic contests are held on the campus at various times during the academic year. Duke is a member of the Atlantic Coast Conference.

## Employment Opportunities

The study of law is demanding. It is designed to occupy the full time of the student and calls for the highest level of concentration. It is unwise for students to dilute their efforts by outside work, especially during the critical first year of study.

For those who find some outside earnings necessary to meet the expense of studying law at Duke and who qualify for the college work/study program under applicable federal regulations, arrangements have been made to provide some part-time employment in the Law School. A number of positions in the law library are filled by law students. Students are often employed in their second and third years as research assistants for faculty members. The University maintains a general placement office to aid in finding employment, and law students may serve as undergraduate residence advisers if they have been at Duke one year or have previously held such positions.

Law student spouses who seek employment will find opportunities as good here as in most other areas of the country. Laboratory and technical workers, secretaries, computer programmers, technicians, and medical personnel are among the workers most in demand in this area. Spouses who are teachers will find the names of the superintendents of schools in nearby districts listed in the *Duke Law School Handbook* (see below). The



University personnel office and the Medical Center personnel office assist interested persons on locating suitable employment on campus.

## **The Duke Law School Handbook**

Incoming students are supplied with a handbook containing useful information which is compiled and updated each year by the DBA. Topics covered include housing, transportation, living needs and expenses, Law School facilities, student health facts including information on the University's Counseling and Psychological Services, and data for married students such as educational and employment opportunities. Also included in the handbook is information on facilities for the handicapped, for whom the school makes special provision as required above and beyond its already considerable accessibility.

*Law Library*



The written law in its variety of forms is the basic working material of the practicing attorney and the legal scholar. At Duke, law students utilize the resources of the library collection and the skills of the highly trained library staff in the development of research skills that will serve them throughout their professional careers.

The Duke Law Library is more than a repository of books. Recognizing its place at the center of the Law School community, the library offers accessible, well-organized collections and services. Both group and individual study areas are arranged in proximity to the most-used materials. The entire collection of over 385,000 volumes is a major research collection designed for the educational needs of law students. It features comprehensive coverage of basic Anglo-American primary source materials, including nearly all reported decisions of federal and state courts, as well as current and retrospective collections of federal and state codes and session laws. Digests, legal encyclopedias, and other indexing devices provide access to the primary documents. Materials subject to heavy student use are available in multiple copies. Comprehensive collections of records and briefs from the United States Supreme Court, the Fourth Circuit Court of Appeals, and the North Carolina Supreme Court and Court of Appeals are maintained in microform and hard copy. The library maintains an extensive and continuously expanding collection of legal treatises. These are organized in the familiar Library of Congress classification system and are accessible through the Duke University public online catalogue and the traditional card catalogue for older materials. Special treatise collections are maintained in several subject areas, including the George C. Christie collection in jurisprudence and the Floyd S. Riddick collection of autographed senatorial material.

The periodical collection includes extensive runs of all major legal research journals, bar association publications, institute proceedings, and newsletters. The library is a selective depository for United States government publications, with concentration on congressional and administrative law materials. Hard copy document holdings are supplemented by an extensive microform collection, which includes complete runs of the *Congressional Record* and the *Federal Register*, all post-1970 congressional materials, congressional committee prints dating back to the mid-nineteenth century, and a number of special subject collections. In addition, law students have access to the extensive documents collection of the main campus library. Important state government documents are collected in both hard copy and microform.

In addition to its Anglo-American holdings, the library holds substantial research collections in foreign and international law. The foreign law collection is extensive in coverage, with concentrations in Canadian, other commonwealth, and European law and business law materials. The international law collection is strong in primary source and treatise material on both private and public international law topics.



But the success of a law school library depends as much on the quality of the services it provides as on the strengths of its collection. At Duke, the library staff includes nine librarians with graduate degrees, five of whom hold additional degrees in law. The staff takes its role in the legal education process seriously. The law-trained staff members serve as instructors for the legal bibliography segments of the first-year research and writing program and regularly offer seminars in topics of advanced legal research. The staff produces a series of research guides, a newsletter, and various current-awareness services. It also maintains bibliographies of books and articles by Law School faculty members. In 1984, these library publications were honored with the American Association of Law Libraries' Law Library Publications Award. Presently, AALL's quarterly journal, *Law Library Journal*, is edited at Duke.

The library actively encourages computer applications in the law school curriculum. The library is a member of the CALI (Computer-Assisted Legal Instruction) Center. Students use CALI exercises related to their law school courses.

The staff now provides access to a variety of computerized information sources. The two major legal databases, LEXIS and WESTLAW, are used for research and training purposes. In addition, an increasing number of full-text and bibliographic databases and comprehensive indexing services are available through NEXIS, VU-TEXT, and DIALOG, as well as the CCH Electronic Legislative Search System. The latest electronic index is LEGALTRAC, an index to legal periodicals in a new format, combining computer and compact disc technologies. It is accessed through an IBM-PC.

As part of Phase I of the Law School renovation plans, the lowest floor of the Law library underwent drastic changes over the summer of 1989. The installation of moveable compact shelving doubled the book capacity of that floor which will primarily house the collections of US government documents, international and foreign law and nonlegal treatises. Sixteen integrated student work stations will be installed in a Local Area Network configuration. Students will be able to access the online catalog, LEXIS, and WESTLAW, CALI and other instructional exercises, as well as do their word processing and use other software programs, all from one terminal. The Law Library is also enhancing its collection by building up a compact disc collection with West CD-ROM and other materials as they are produced.

The library is part of the Law School and is administered independently of the main library system at Duke. The Duke University Libraries (Perkins, Law, Business, and Medical) contain one of the major research collections in the country, holding well over 3,000,000 volumes.

To obtain materials not available locally, the Law Library staff makes use of a computerized interlibrary loan network, which allows retrieval of information from libraries throughout the country. Cooperation with other libraries, both on and off campus, ensures that materials are available when needed for the Law School community.

The staff of the Law Library in 1989-90 includes the following professionals:

Richard A. Danner, B.A., M.S., J.D., *Director of the Law Library and Professor of Legal Research*

Hope E. Breeze, B.A., M.L.S., *Head of Technical Services*

Janeen J. Denson, A.B., M.S.L.S., *Circulation Librarian*

Claire Germain, B.A., LL.B., M.C.L., M.L.L., *Associate Director of the Law Library and Senior Lecturer in Comparative Law and Legal Research*

Betty Hertel, B.S., M.L.S., J.D., *Reference Librarian and Instructor in Legal Research*

Kenneth J. Hirsh, B.A., J.D., M.L.S., *Reference Librarian and Instructor in Legal Research*

Doris M. Hinson, B.A., M.L.S., *Cataloger*

Janet Sinder, A.B., J.D., M.S., *Senior Reference Librarian and Instructor in Legal Research*

Gretchen Wolf, B.S., M.S., *Acquisitions Librarian*

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*International Students*



## International Law Study at Duke

Duke Law School welcomes international students to all its programs of study. Students come from countries throughout the world with the largest representation currently from the People's Republic of China. Admission to all programs is very competitive. Highly qualified international students who seek exposure to the American legal system and the legal profession are encouraged to apply to Duke.

## Degree Programs for International Students

**Juris Doctor (J.D.).** Foreign students may be admitted to pursue the J.D. degree. This program should only be attempted by students who are prepared to handle the difficulties of an American legal education. International students at Duke enter into a program designed for very able professional students who, of course, possess a substantial background in their own American culture. No other academic discipline makes such enormous demands on the intellectual adaptability of the students. J.D. applicants whose first language is not English must present a high score on the Test of English as a Foreign Language (TOEFL). They are also required to take the Law School Admission Test (LSAT). Candidates who have earned professional law degrees in systems not dissimilar to the American system may be able to receive credit for as much as one-third of the course work required for the completion of the J.D. degree. Students who have completed the LL.M. degree in the United States may also apply to the J.D. program; in some cases, they may receive credit for courses taken in other American law schools and may be able to complete the J.D. degree in fewer than three years. All inquiries about the J.D. program should be directed to the Law School Office of Admissions.

**Master of Laws (LL.M.).** Most international students seek the master's degree, having already been trained in the law of their own countries. The degree requires two semesters of study in residence and a minimum of twenty-one semester hours of course work.

Students are required to take one first-year course which brings them into contact with American students facing similar academic challenges for the first time. A second requirement is enrollment in a seminar or an independent study course with a faculty member, the end product of both being the submission of a respectable piece of written work by the student. Most international students will also take Introduction to American Law and a two-credit legal research and writing course. The remainder of the program is individually selected by the student from the J.D. curriculum with the guidance of a faculty adviser. LL.M. students participate in classes with J.D. students and the same grading scale is applied. International students whose first language is not English are given extra time on final examinations, however. Students are customarily expected to complete the degree in one year.

**Doctor of Juridical Science (S.J.D.).** International students who have already earned a degree in American law at the master's level may apply for admission to the S.J.D. degree. Admission is extremely selective, and students should apply only if they have outstanding academic performance records from their home and their American institutions. S.J.D. candidates are expected to be able to demonstrate that they are capable of conducting original research and will produce a thesis that makes a contribution to legal scholarship. Applicants should submit transcripts from all previous academic institutions at which they have studied; references from at least two faculty members, including at least one American faculty member; a sample of written work; and a preliminary thesis proposal. Students admitted to the S.J.D. program will usually be asked to complete one to two semesters of course work at Duke before they begin the thesis. The student's research and thesis will be supervised by a faculty member highly qualified in that area of law and by two additional faculty members in the same or related fields. The S.J.D. will take two to three years to complete. It should be noted that very few students gain admission to this program of study.

## Admission of International Students

A separate admission process is maintained for foreign students applying to the LL.M. or S.J.D. programs. Prospective applicants should write for forms and information to Judith Horowitz, Associate Dean for International Studies. An application fee of \$55 is charged and should accompany the application. Students from countries where English is not the principal language are required to present a satisfactory score on the Test of English as a Foreign Language (TOEFL), which is administered by the Educational Testing Service of Princeton, New Jersey. For further information, appropriate officials at the student's university should be consulted.

Applications and supporting material should reach Duke by February 15. Students who sit for the TOEFL later than January should be advised that it often takes up to two months for examination results to reach Duke. Late TOEFL scores may seriously delay or even jeopardize admissions decisions. Applicants will be notified of acceptance beginning in late February. The LL.M. class is normally filled by late April. It is to the applicant's advantage to apply early. Admission is for the fall semester only.

## Financial Aid

Duke offers limited financial assistance to foreign students. Foreign applicants admitted to Duke will be required to supply assurance of their ability to pay their tuition and living expenses. A deposit fee of \$500 will be required to confirm acceptance of a position at the Law School. All non-U.S. citizens will need to provide proof of sufficient financial support for their program of study in order for the University to initiate the student visa process.



## Housing

Duke University maintains furnished apartments in which many graduate and professional students reside. It is usually possible to arrange for a single international student to share an apartment with one or more American students. In addition to Duke University housing, there is an abundance of well-appointed, relatively inexpensive housing in the area. Compared to most urban areas, the cost of living in Durham is quite reasonable.

## Placement with American Law Firms

Some international students find that they would like to complete their legal education with an internship with an American law firm. Students are welcome to use the services of the Law School Placement Office. The office also sponsors special workshops for international students in order to explain the placement process, to help with writing resumes and with interview techniques, and to offer other kinds of assistance as necessary. The Placement Office will assist in scheduling interviews. It is useful for international students to make contact with American law firms before they enroll at Duke if that is possible. The visa office at Duke will help students obtain permission for practical training. The Law School cannot, of course, guarantee that students will have success in locating a position with an American law firm. Information about taking state bar examinations will be available in the Placement Office.

## Special Features of Duke for International Students

The size of the international student body at the Law School is large enough to be felt as a presence at the School, but not large enough to be a separate entity. Special care is taken to make international students feel welcome at Duke. The University sponsors a four-day orientation and offers the opportunity for all foreign students to be placed with a host family in Durham. The Law School also conducts its own orientation for all entering students and has several separate sessions devoted only to international students. All new international students at the Law School are assigned to an upper class student who acts as a "big sister or brother." One international student is elected each year to serve as a representative to the Duke Bar Association. All clubs and associations, but especially the International Law Society, encourage the participation of international students. The Society's annual publication includes articles written by international students. Every effort is made to help foreign students become integrated into the Duke community.

The Law School has an associate dean whose responsibilities include admission of international applicants, orientation, academic and adaptation counseling, and other services for international students. Each student is assigned to faculty adviser who offers guidance with course selection. The legal research and writing course is carefully structured in order to familiarize students with the law library, with legal writing techniques of a gradually more demanding nature, and with the skills necessary for a beginning associate to function effectively in a law office. The Introduction to American Law course provides an overview of various areas of American law, of the legal profession, and of the judicial process. The goal of the LL.M. program is to provide international students with as complete an exposure to American law and culture as can be gained in one academic year.

International students are also encouraged to attend the Law School's Duke in Denmark Summer Institute in Transnational Law. The institute is sponsored annually in cooperation with the University of Copenhagen at a conference center in suburban Copenhagen. Courses are taught in English by both American (usually Duke) and non-American faculty, and LL.M. students can earn up to six credits toward their degree at Duke by taking courses in Denmark. One course serves as an introduction to the American judicial process and to American constitutional law. The program enrolls about sixty students from Duke, other American law schools, and a wide variety of countries. Brochures are available from the Law School in November of each year.

*Placement*



## Placement Services

The advantages of attending a school the size of Duke extend into the placement process. An active placement office that includes the Director of Placement and two staff members is happy to help students in all aspects of their job search. The placement office is involved in a variety of activities designed to assist students seeking employment. These activities include coordination of an extensive on-campus recruiting season, maintenance of materials on legal careers, available positions, bar memberships, and related matters and assisting students and recent graduates throughout the year in the job placement process.

Since the student body is relatively small, the placement office is able to provide individual attention to students throughout their tenure at the Law School. Services provided by the placement office include: individual assistance in resume and cover letter writing; personal counseling on career choices, job opportunities, and strategies; workshops and seminars on everything from values clarification to firms in "off-Broadway" cities; and information regarding the on-campus interviewing process.

Because of Duke's national prominence and the diverse background of the student body, over 400 employers from around the country visit the campus each fall to interview approximately 375 second- and third-year students. In addition, almost 1,000 employers a year write to request student resumes. With the wide variety of employment possibilities available, a substantial number of students in each of these classes receive offers of employment. Generally speaking, about two-thirds of the students will find employment in a broad "eastern corridor" that stretches from Boston to Miami. The remaining third of the students find jobs in most of the remaining midwestern and western states. Approximately one in ten students begin their professional careers as judicial clerks, including several who serve on the staffs of federal appellate judges. A large number of students accept employment with private law firms, but there is a steady core of students whose interests range among public service organizations, governmental agencies, business corporations, and other areas. Beginning salaries exceed \$60,000 in the largest cities, but the median for first jobs is substantially lower. By graduation of each year approximately 90 percent of both the second- and third-year classes have found employment. Since jobs continue to be available after that time, the hiring rate continues to improve over the summer. The placement office makes every effort to assist students in finding the kind of legal employment they seek.



First-year students most actively seek employment during the late fall and spring semesters. While first-year students do not participate in the fall on-campus interviewing program, there is an on-campus program between January and March that is primarily for these students. The number of on-campus interviews for first-year students has tripled in the last few years. In addition, listings of employers who seek first-year clerks are available throughout the semester. The placement office also collects lists of legal internships and law-related summer volunteer opportunities that may be of interest to first-year students. The placement office encourages students to explore the variety of professional opportunities available to them and seeks to instruct them in effective job-hunting as well. Of the 187 students from the Class of 1990 reporting on summer employment after the first year, 98 percent reported employment with 96 percent of that employment being law related.

It should be noted, however, that the students themselves are primarily responsible for finding their own employment. They must be willing to devote a large amount of their time to letter-writing and to interviewing. The Law School diligently attempts to assist its graduates, but the ultimate responsibility rests with each student.

Below are placement statistics for the three most recent graduating classes:

	1985-86	1986-87	1987-88
Inquiries Received . . . . .	737	708	820
Interviews on Campus . . . . .	430	425	415
<b>Employers' Geographical Distribution</b>			
Northeast . . . . .	149(35%)	167(39%)	168(40%)
Southeast . . . . .	137(32%)	123(29%)	110(27%)
Midwest . . . . .	66(15%)	57(14%)	56(13%)
West . . . . .	78(18%)	78(18%)	81(20%)
<b>Student Information</b>			
Graduates Reporting Employment as of June 30 . . . . .	92% =	90%*	91% +
Median Starting Salary . . . . .	\$38,359	\$44,175	\$48,766
<b>Geographical Distribution</b>			
Northeast . . . . .	66(44%)	71(44%)	79(50%)
Southeast . . . . .	45(30%)	39(24%)	34(22%)
Midwest . . . . .	19(12%)	23(14%)	14(9%)
West . . . . .	21(14%)	27(17%)	20(13%)
<b>Nature of Employment</b>			
Private Firms . . . . .	116(77%)	124(78%)	110(80%)
Business/Corporations . . . . .	4( 3%)	0( 0%)	1( 1%)
Government . . . . .	6( 4%)	7( 4%)	7( 4%)
Judicial Clerkships . . . . .	18(12%)	23(14%)	24(15%)
Public Service/Public Interest . . . . .	1( 1%)	1( 1%)	1( 1%)
Military . . . . .	3( 2%)	1( 1%)	3( 2%)
Academic . . . . .	1( 1%)	2( 1%)	1( 1%)

= Class of 1986 had 165 members

\* Class of 1987 had 178 members

+ Class of 1988 had 173 members

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*Alumni Affairs*



## Alumni Affairs

Though Duke Law School graduates are dispersed across the country and throughout the world, their relationship with the Law School remains close. The Duke Law School Alumni Office, working with the Duke Law Alumni Association, links the school's approximately 5,000 alumni with the Law School and with each other.

**Law Alumni Association.** Every alumnus/a of the Law School is a member of the Law Alumni Association. The Law Alumni Council, its governing body, consists of sixteen members, who serve three-year rotating terms. The Law Alumni Association is not a fundraising organization. The Council does, however, solicit dues from the alumni and oversee the expenditure of these funds for alumni programs.

**Reunions and Law Alumni Weekend.** The Law School Alumni Affairs Office organizes reunions by class at five-year intervals. The reunions are held in the fall on Law Alumni Weekend to which all law alumni are invited. A reunion chairperson from each class is responsible for helping to plan reunion activities and encouraging classmates to attend. Festivities include an all alumni cocktail party, a professional program, a football game, a barbecue, and a reception and dinner for reunion classes. At the 50th reunion, alumni are inducted into the Half-Century Club.

In 1985, the Law Alumni Council established the Charles S. Murphy Award to be presented during Law Alumni Weekend to an alumnus or alumna whose devotion to the common welfare is manifested in public or quasi-public service or in dedication to education. Charles S. Murphy, a North Carolina native, devoted himself to public service, serving in the administrations of Truman, Kennedy, and Johnson as well as serving as a Duke trustee and member of the Law School Board of Visitors.

**Alumni Publications.** The *Duke Magazine*, an award-winning alumni publication which provides news and features about University programs, faculty research, student life, and alumni activities is published for all Duke alumni. Through the magazine, alumni are informed about each other, campus changes, and issues affecting higher education generally and Duke specifically.

The Law School Alumni Affairs Office publishes the *Duke Law Magazine* twice yearly. It is sent to all Duke Law alumni. Through the magazine alumni are informed of faculty work on important legal issues. A newly expanded alumni section includes an alumni notes section through which alumni can keep each other informed of milestones in their professional and personal lives. It also includes articles on different segments of our alumni body and profiles of some interesting individuals.

The Law School Alumni Affairs Office also publishes an annual report for the Law School at the end of each fiscal year, which is sent to all law alumni. It includes reports from all offices and departments of the Law School and is an excellent way to bring everyone up to date regarding changes at the Law School.

The Law Alumni Association commissions a general directory of all Duke Law alumni every five years. The current directory was distributed to all law alumni who paid dues to the Law Alumni Association or made a contribution to the Law School Annual Fund Campaign.

**Local Associations.** The Law School Alumni Affairs Office coordinates and supports the activities of local law alumni associations. The purpose of the local association program is to establish and maintain a sense of community and identity with the Law School and among our alumni. We also hope to increase alumni awareness of the progress and needs of the school. These objectives are pursued through social and educational events for alumni which are attended by a Law School representative. The Law Alumni Association dues help defray the expense of these events.

Besides serving a social and networking function for local alumni and encouraging a sense of community, these groups also provide some practical assistance to the Admissions and Placement Offices of the Law School. An admissions committee or representative may be called upon to help recruit suitable applicants from undergraduate schools in the area. A placement committee or representative may be called upon to counsel and aid students seeking employment in the area.

The Law School is also beginning to pursue a strong alumni relations program with our growing international alumni body. The Law School Alumni Affairs Office sponsors an annual reception for current international students to explain alumni and development programs. There are organized local associations in Tokyo and Europe. Alumni social events held in Japan and in Europe have been very well attended.

**Conference on Career Choices.** In response to both student and alumni interest, the Law Alumni Association and the Duke Bar Association have agreed to jointly sponsor a Conference on Career Choices, which is coordinated by the Law School Alumni Affairs Office. The program, a series of panel discussions featuring alumni in various legal fields, is designed to provide information regarding different legal careers and how personal objectives may relate to career choices. The conference concludes with a cocktail reception sponsored by the Law Alumni Association for all students and conference participants in honor of the graduating class.

In addition to coordinating this conference, the Law School Alumni Affairs Office is involved with students and student organizations throughout their law school careers, and, in fact, ushers them into alumni status by coordinating the Law School activities for Graduation Weekend. Students are invited to attend all alumni events at the school and make a significant contribution to the Annual Fund Campaign during the annual telethons. The Law School Alumni Affairs Office is also available to individual students and to student organizations who wish to contact alumni.

**Alumni Admissions Interviewing Program.** In 1985-86, the Law School began a pilot program which invites our alumni to help in the application and admissions process. The program, which is administered by the Law School Admissions Office, involves alumni in recruiting, interviewing, and communicating with prospective students.

**Annual Fund Campaign.** Gifts made by alumni and other friends of the Law School to the Duke Law School Annual Fund provide flexible financial support to the school. These funds undergird the operating budget and pay for items that endowment funds, often designated for specific purposes, do not address and that tuition revenues fall short of covering. Duke Law alumni are very responsive to the Annual Fund Campaign. Over 40 percent of the law alumni are donors to the Law School Annual Fund.

A special group of alumni, known as the Council for the Annual Fund, serve as an alumni advisory council for the annual fund drive. This group presently consists of approximately forty alumni chosen from those areas of the country where we have or are sending a significant number of alumni.





# Appendix A

## Former Schools of Duke Law Students

Albion College	1	Howard University	1
Allegheny College	1	Illinois Wesleyan University	1
Alma College	2	Indiana University	10
Amherst College	6	John Carroll University	1
Arizona State University	1	Johns Hopkins University	4
Assumption College	1	Juniata College	1
Auburn College	2	Kalamazoo College	3
Austin College	2	Lafayette College	2
Baldwin Wallace College	1	LaSalle University	3
Baylor University	7	Lehigh University	1
Bernard M. Baruch College	1	LeMoyné College	1
Bob Jones University	1	Louisiana State University	1
Boston College	6	Loyola University	2
Boston University	2	Marquette University	2
Brandeis University	3	Massachusetts Institute of Technology	1
Brigham Young University	1	Miami University	1
Brown University	8	Michigan State University	1
Bryn Mawr College	1	Middlebury College	1
Bucknell University	1	Mills College	1
Calvin College	1	Mississippi State University	1
Campbell University	1	Montclair State University	1
Carnegie Mellon University	1	New York University	4
Carson Newman College	1	Norbert College	1
Case Western Reserve University	2	North Carolina State University	3
Catholic University	1	North Park College	1
Clark University	1	Northeast Missouri State University	1
Colgate University	1	Northeastern University	4
College of Charleston	1	Oberlin College	1
College of the Holy Cross	1	Occidental College	2
College of William & Mary	3	Ohio Northern University	1
Colorado College	1	Ohio State University	1
Columbia Bible College	1	Pacific Lutheran University	2
Columbia University	5	Pennsylvania State University	6
Cornell University	5	Pepperdine University	1
Dartmouth College	11	Perdue University	4
Davidson College	4	Pomona College	1
DePaul University	1	Princeton University	15
Dickinson College	1	Queens College	2
Drury College	1	Rhodes College	1
Duke University	47	Rice University	3
Eastern Kentucky University	1	Rutgers College	1
Emory University	11	St. Joseph's University	1
Emory & Henry College	1	St. Lawrence University	1
Emporia State University	1	St. Louis University	1
Fairfield University	2	San Diego State University	1
Florida International University	1	Seton Hall University	1
Florida State University	5	Skidmore College	1
Fordham University	2	Southern College of Seventh Day Adventists	1
Georgetown University	9	Southern Methodist University	2
George Washington University	3	Southwestern University	1
Grace College	1	Stanford University	7
Grinnell College	2	State University of New York at Albany	3
Grove City College	1	State University of New York at Binghamton	3
Hamilton College	1	State University of New York at Brockport	1
Harding University	1	State University of New York at Buffalo	2
Harvard University	11	State University of New York at Genesco	1
Haverford College	2	State University of New York at Stony Brook	1
Hillsdale College	2	Syracuse University	1
Hobart College	1	Texas A&M University	2
Hofstra University	1	Texas Christian University	1
Hood College	1	Texas Technical University	2

Temple University	1	University of Northern Colorado	1
Trinity College	3	University of Notre Dame	18
Trinity University	2	University of Pennsylvania	18
Transylvania University	1	University of Pittsburgh	1
Tufts University	6	University of Puget Sound	1
Tulane University	2	University of South Carolina	2
Union College	2	University of South Florida	1
University of Alabama in Huntsville	1	University of Southern California	1
University of California at Berkeley	4	University of Tampa	1
University of California at Los Angeles	1	University of Tennessee	1
University of California at San Diego	1	University of the South	1
University of Central Florida	1	University of Tulsa	1
University of Chicago	1	University of Texas	5
University of Cincinnati	1	University of Vermont	1
University of Colorado	3	University of Virginia	9
University of Dayton	1	University of Washington	3
University of Delaware	1	University of Wisconsin	5
University of Florida	9	United States Merchant Marine Academy	1
University of Georgia	2	Utah State University	2
University of Hawaii at Manoa	1	Vanderbilt University	9
University of Illinois	5	Villanova University	2
University of Iowa	1	Virginia Wesleyan College	1
University of Kansas	3	Wabash College	1
University of Kentucky	1	Wake Forest University	4
University of Louisville	1	Washington University	2
University of Maryland	2	Wellesley College	5
University of Massachusetts	2	Wesleyan University	1
University of Miami	5	West Virginia University	1
University of Michigan	11	Westminster College	1
University of Missouri	3	Wheeling College	1
University of Nebraska	1	Whitworth College	1
University of North Carolina at Asheville	1	Williams College	6
University of North Carolina at Greensboro	1	Wittenberg University	2
University of North Carolina at Chapel Hill	22	Yale University	12



# Appendix B

## Foreign Universities

Beijing Foreign Languages Institute	4	Universidad Javeriana	1
Beijing Normal University	1	Universite de droit Paris	11
Beijing University of International Business & Economics	1	University of Aarhus	1
Central Police College	1	University of Alberta	1
Fudan University	3	University of Copenhagen	1
Goethe University	2	University of Ghana	1
McGill University	2	University of Leiden	1
Nanterre University	1	University of Liege	1
National Chung-Hsing University	1	University of Louvain	1
National Taiwan University	1	University of Manitoba	1
Peking University	2	University of Tokyo	4
People's University of China	1	University of Santa Maria la Antigua	1
Universidad Catolica	1	Taiwan University	1
		Tel-Aviv University	2

## Home States of Duke Law Students

Alabama	8	Missouri	12
Alaska	1	Nebraska	2
Arkansas	3	Nevada	1
California	14	New Jersey	34
Colorado	2	New Mexico	2
Connecticut	18	New York	78
Delaware	2	North Carolina	52
District of Columbia	2	North Dakota	1
Florida	47	Ohio	19
Georgia	18	Oklahoma	2
Hawaii	4	Idaho	3
Oregon	2	Illinois	29
Pennsylvania	34	Indiana	5
Rhode Island	3	Iowa	4
South Carolina	8	Kansas	5
South Dakota	2	Kentucky	11
Tennessee	6	Texas	13
Louisiana	6	Utah	2
Maryland	25	Virginia	10
Massachusetts	14	Washington	3
Michigan	11	West Virginia	2
Minnesota	3	Wisconsin	8
Mississippi	2	Wyoming	2

## Foreign Countries

Belgium	2	Israel	1
Canada	4	Japan	4
Columbia	1	Korea	2
Denmark	2	New Guinea	1
France	2	Panama	1
Germany	1	People's Republic of China	12
Greece	1	Taiwan	4
Holland	1	Venezuela	1







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*The Fuqua School of Business*





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**Duke University**  
**1989-90**

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*The Fuqua School of Business*

EDITOR  
Judy Smith  
SENIOR EDITORIAL ASSISTANT  
Elizabeth Matheson  
FUQUA SCHOOL OF BUSINESS  
Bette Collier

---

PHOTOGRAPHS

Les Todd  
Jim Wallace  
Robin Alexander

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The information in this bulletin applies to the academic year 1989-90 and is accurate and current, to the extent possible, as of August 1988. The University reserves the right to change programs of study, academic requirements, teaching staff, the calendar, and other matters described herein without prior notice, in accordance with established procedures.

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*Dean Thomas F. Keller*

## The Fuqua School of Business Calendar\*

1989

<b>August</b>	
23-25	Orientation and registration
28	Fall classes begin
<b>September</b>	
4	Labor Day, classes in session
<b>October</b>	
14-17	Fall break
<b>November</b>	
23-26	Thanksgiving break
<b>December</b>	
8	Classes end
10-16	Examination period

1990

<b>January</b>	
15	Spring classes begin
<b>March</b>	
12-16	Spring break
<b>April</b>	
27	Classes end
29	Examination period starts
<b>May</b>	
5	Examination period ends
13	Commencement

---

\*Dates of the 1989-90 calendar are subject to change by the Provost of Duke University during the 1988-89 year.



## A Message from the Dean

In his indenture establishing Duke University, James Buchanan Duke stated his desire that the University excel in the teaching of medicine, religion, and business. The Board of Trustees of Duke University, in 1969, established the Graduate School of Business Administration with a mandate to provide programs in management education of the highest quality. In 1980 the school was renamed to honor J. B. Fuqua of Atlanta, Georgia, who is an emeritus member of the University's Board of Trustees and an active member of the Fuqua School's Board of Visitors. Mr. Fuqua continues to support the school through his generosity and his participation in its programs.

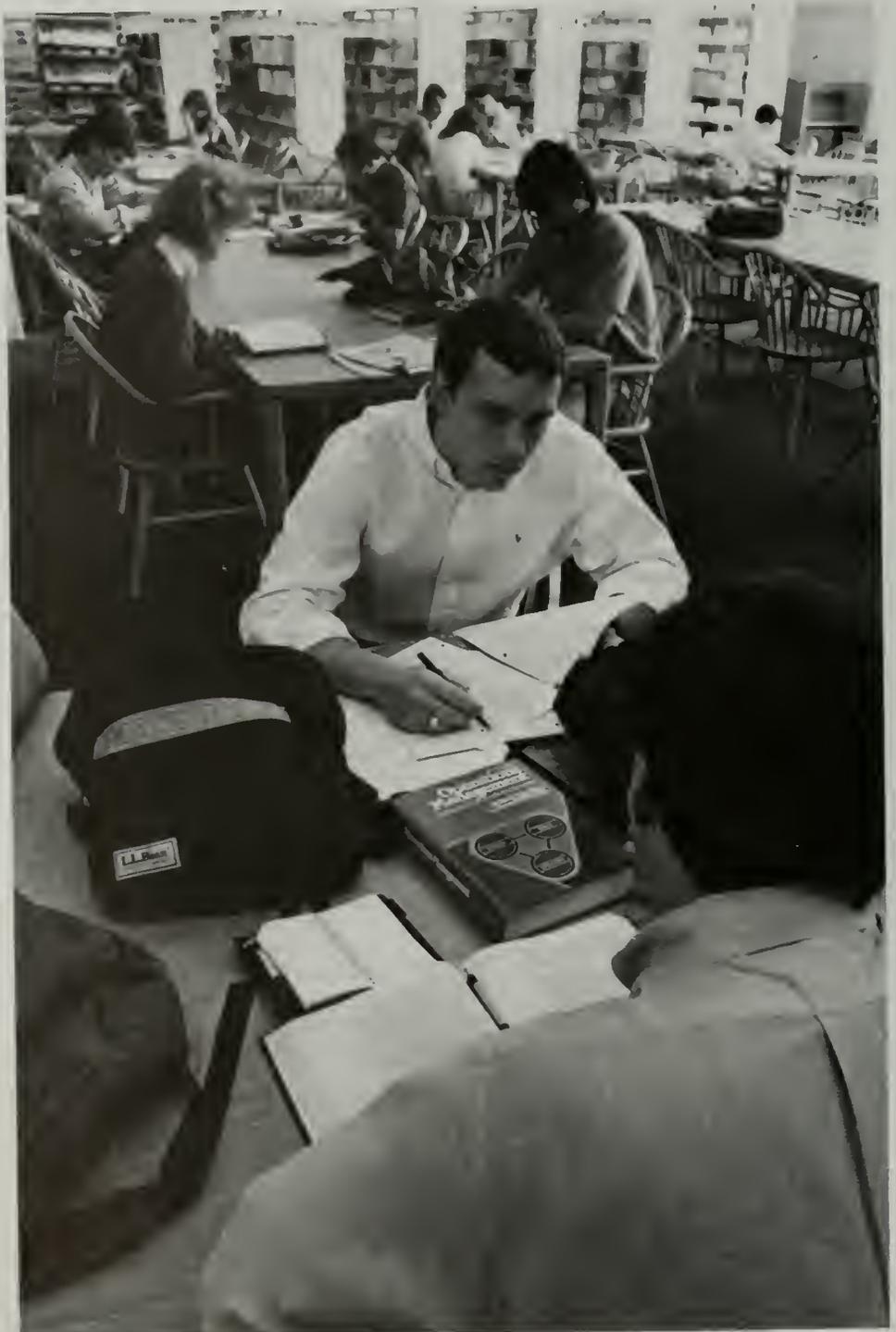
The mission of the Fuqua School of Business is to enhance the practice of management through education and research. Our approach is to prepare men and women to meet their career opportunities with a strong educational background and with an awareness of the need for initiative and leadership when faced with business challenges. We seek students who possess high academic standards and who also demonstrate the ability to think creatively. These are important qualities for business leadership and are reflected in the orientation of our entire program. As a school, we are committed to retaining our flexibility and our responsiveness to management needs as they arise in the business community.

Our heritage at Duke is a tradition of excellence in education. At the Fuqua School we have built on this heritage to develop programs which will enable graduates to meet the challenges of leadership in business, government, and educational organizations.



Thomas F. Keller  
*Dean*

# *General Information*



## Duke University

In 1839 a group of citizens from Randolph and adjacent counties in North Carolina assembled in a log schoolhouse to organize support for a local academy founded a few months earlier by Brantley York. Prompted, they said, by 'no small share of philanthropy and patriotism,' they espoused their belief that 'ignorance and error are the banes not only of religious but also civil society which rear up an almost impregnable wall between man and happiness.' Union Institute, which they then founded, was reorganized first in 1851 as Normal College to train teachers, and eight years later as Trinity College, a liberal arts college, which later moved to the growing city of Durham, North Carolina. With the establishment of the James B. Duke Indenture of Trust in 1924, Trinity College became Duke University. Today, Duke is a two-campus institution with a student body of about 9,000, of whom 3,000 are enrolled in the graduate and professional programs. Established in 1969, the Graduate School of Business Administration joined the Schools of Medicine, Nursing, Law, Engineering, Divinity, and Forestry in preparing qualified individuals for professional leadership and developing excellence in education for the professions.

**The Campus.** The main campus (West) of Duke University is a beautifully designed complex of buildings in Gothic architecture, bordered on the east by the Sarah P. Duke Gardens and on the west by the 8,000-acre Duke Forest. This campus is dominated by the Duke Chapel, whose 210-foot-high tower houses a 50-bell carillon. The William R. Perkins Library is one of the largest research libraries in the country. The new facility for the Fuqua School of Business is located on West Campus near the intersection of Science Drive and Towerview Drive. The East Campus is a smaller complex of Georgian-style buildings and has, as major points of interest, the Duke University Museum of Art and the Mary Duke Biddle Music Building.

Durham is a part of the Research Triangle, an area formed by Duke University, the University of North Carolina at Chapel Hill, and North Carolina State University at Raleigh. The Research Triangle Park, a 5,400-acre campus for research laboratories, governmental agencies, and research-oriented industries, is recognized as one of the world's leading science centers. Durham, located near the center of the state, has easy access to the Great Smokies of the Appalachian Mountains and to the scenic and historic beaches of the Outer Banks. The area offers varied cultural and recreational activities ranging from concerts, opera, dance, theater, and recitals to intramural and collegiate sports, boating, skiing, camping, and other outdoor activities.

**The Fuqua School of Business.** Recognizing the importance of business education, Duke University's Board of Trustees established the Graduate School of Business in 1969, with the mandate to provide management education programs of the highest quality. The school began with two programs; an undergraduate major in management science, and a fledgling M.B.A. Program that graduated its first class of twelve students in 1972. Since that time, the school has grown to include five major academic programs, a faculty of fifty-three, and almost 700 masters degree candidates enrolled in daytime and executive M.B.A. programs. The school also offers a wide range of nondegree executive education programs and seminars.

J. B. Fuqua, Chairman of Fuqua Industries, Atlanta, Georgia, has supported the school generously in its development. In honor of Mr. Fuqua's contribution to the school and personal participation in its growth, the school was renamed the Fuqua School of Business in 1980 by proclamation of the Board of Trustees.

In January of 1983, the Fuqua School of Business moved into its new building on Science Drive on Duke University's West Campus. This building, designed by Edward Larrabee Barnes, offers one of the finest settings for management education in the United States. The 140,000 square feet of space provides for the instruction of M.B.A. students in a variety of degree programs as well as for year-round executive education programs.

The building is constructed in two wings. One wing, primarily designed for M.B.A. education, includes six amphitheater-style classrooms, the 500-seat Harold S. Geneen Auditorium, a library completely devoted to management education, and numerous seminar and breakout rooms. The second wing is devoted to executive education, and features the R. J. Reynolds Executive Auditorium, dining and lounge facilities, and small group meeting rooms.

## Resources of the University

**The Library System.** The libraries of the University consist of the Perkins Library system and three professional school libraries: the Fuqua School of Business Library, the Law Library and the Medical Center Library. The Perkins Library system includes the main library of the University, the William R. Perkins Library, and nine branches: Biology-Forestry, Chemistry, Divinity, the East Campus library, Engineering, Music, Math-Physics, the Undergraduate Library, and the Pearse Memorial Library at the Duke Marine Laboratory in Beaufort. As of June 1987, Duke libraries contained approximately 3,627,000 volumes and ranked nineteenth in size among academic libraries in the United States. More than 10,000 periodicals, 11,000 serials, and 170 newspapers are received regularly. The collection includes more than 7,500,000 manuscripts, 100,000 maps, 40,000 sheets of music, and 700,000 microforms.

*The William R. Perkins Library.* The William R. Perkins Library—the main library of the University—houses most of the books and journals in the humanities and social sciences, large files of United States federal and state documents, public documents of many European and Latin American countries, publications of European academies and learned societies, and special collections from South Asian, Far Eastern, and Slavic countries. The newspaper collection, with 90,000 nineteenth-century New England papers and antebellum and Civil War papers from North Carolina, South Carolina, and Virginia, as well as many European and Latin American papers. The manuscript collection of approximately five million items is particularly strong in all phases of life in the South Atlantic region. It also includes significant papers in English and American literature. The rare books collection contains materials covering a broad range of fields, and the Latin and Greek manuscripts constitute one of the outstanding collections in the United States. The collection of Confederate imprints is the largest in the country.

Requests of the Perkins Library are given frequently during orientation week and upon request throughout the year. Information about other campus libraries may be obtained from the staff in each of the libraries. Handbooks about library services and facilities are also available in each of the libraries.

*The Fuqua School of Business Library.* The Fuqua library houses the principal business collections for the University, and includes books, journals, and working papers in accounting, entrepreneurship, finance, human resources management, industry studies, information science, international business, managerial economics, marketing, organizational behavior, and operations management. The library's collections are tailored to the needs of the students and faculty of the Fuqua School and, since the library was established in 1983, most of the materials are recent editions. As of June 1988, the library houses 14,000 volumes of books, 300 current periodical subscriptions, 200,000 microforms, and a comprehensive business reference collection. The library also houses several special collections, including annual and 10k reports on microfiche, computer software, and career placement materials.

The library searches all major computerized databases, such as Dow-Jones News/Retrieval and over 200 databases on the Dialog, BRS, and NEXIS systems, which cover the spectrum of business research. The library's on-line catalog locates books in all Duke libraries, as well as in the libraries at neighboring universities. In addition, the library has on-line access to other computer systems that locate books and journals in other libraries, and obtains these materials on loan for Fuqua faculty and students.

Library services also include a journal contents alerting service for faculty and library instruction for faculty and students. To assist M.B.A. students, librarians are available business hours Monday through Friday. Additional hours of reference are available during the evenings or on weekends for Executive M.B.A. Evening and Weekend Program students.

During orientation week, tours are offered covering the library's collections and services. In addition, brochures and bibliographies describing the library's collections and services are available at the circulation desk.

**Computing Resources.** The Fuqua School's Computer Education Center has responsibility for managing all instructional, research, and administrative computing in the school. For student use, the Center maintains two computer laboratory areas: one contains 40 AT&T 6312 AT-compatible PCs and the other contains 22 Unisys B26 PCs. There are an additional 25 AT&T and Unisys AT-compatible PCs located in individual team study rooms. Most of the PCs have their own dot-matrix printer and shared laser printers are available. The PCs in the labs and team rooms are connected by local area networks over which a wide variety of software is distributed. These local area networks are interconnected by an ISN network allowing access to three AT&T 3B2 minicomputers as well as the School's other computer resources.

The Computer Education Center maintains an IBM 4381 mainframe computer for faculty research computing, elective M.B.A. coursework, and administrative data processing. All offices and classrooms in the Fuqua School building, along with some of the student-use PCs, are interconnected through a network based on the IBM 4381 and the AT&T ISN. A variety of mainframe software systems for communications, database management, statistical analysis, high level language programming, and expert systems development are available on the IBM 4381 for large scale business computing. Each of the School's classrooms and auditoria is equipped with a PC capable of projecting both mainframe and PC network applications.

Overall, the Fuqua School's computing facilities provide an impressive wealth of resources to the school. More importantly, the nationally recognized Computer Education Center fosters a dynamic computing environment characterized by ongoing efforts to expand and improve the computing resources available to students and faculty.

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*Programs of Study*



## The Master of Business Administration Programs

The Duke M.B.A. Program prepares individuals for challenging management jobs in the private sector. The program emphasizes the understanding and application of analytical tools and concepts drawn from a broad array of management fields of inquiry. The student is asked to structure unstructured situations and to propose solutions to complex problems. By studying analytical tools, theories, and examples, the student learns to identify the common threads in seemingly different business situations and to grasp the essential nature of unfamiliar management problems.

The teaching styles adopted by the faculty vary. In some courses, lectures are the rule. In others, the case method predominates. In still others, there is a mix of many styles, including role playing and student presentations. Depending on the course, the work done outside of class is likely to consist of (1) reading texts or articles, (2) working problem sets, (3) researching and writing papers, or (4) preparing cases and discussing them in small study groups.

The school has made a deep commitment to the use of the computer in business education. Students are required to master word processing, spread-sheet programs, and some statistical packages on microcomputers. A number of courses require the use of these newly developing managerial skills. Likewise, the school is also committed to improving the communications skills of its students. The business communications curriculum does not stand by itself, but has been carefully integrated into other course work.

In these ways and others, the school is determined to stay in the forefront of business education.

The Fuqua School of Business is accredited by the American Assembly of Collegiate Schools of Business and is a member of the Graduate Management Admission Council.

### OUTLINE OF THE CURRICULUM

The M.B.A. degree requires four semesters of full-time work totaling 63 units of graduate course credit. Students who are exceptionally proficient in a particular subject will be allowed to substitute advanced course work for one or more core courses. There are no summer sessions for students in the M.B.A. program.

Modern management often requires analytical reasoning which focuses on precise statements of relationships between variables. In contemplating the future, concepts of probability become especially important. For these and other reasons much of our course work assumes a firm grasp of mathematical concepts. We strongly encourage each applicant to come prepared with the necessary background. A working knowledge of calculus is essential. Evidence of this preparation is required for admission.



**The First-Year Program.** Course work in the first year is designed to provide the basic knowledge and tools of analysis for the operations of business organization. In the second semester of the first year, students are introduced to the functional areas of the firm. The first-year program includes:

**Fall Semester**

BA 300	Managerial Economics	3 units
BA 311	Statistical Analysis for Management	3 units
BA 312	Quantitative Analysis for Management	3 units
BA 320	Organization Behavior	3 units
BA 330	Financial Accounting	3 units
BA 318	Computer Laboratory	1 unit

16 units

**Spring Semester**

BA 301	Economic Environment of the Firm	3 units
BA 331	Managerial Accounting	3 units
BA 350	Financial Management	3 units
BA 360	Marketing Management	3 units
BA 370	Operations Management	3 units
BA 388	Business Communications	2 units

17 units

**The Second-Year Program.** The second year of the M.B.A. program consists of one required course and nine electives. The required course, BA 341, The International Environment, considers the major social, political, cultural, economic, and legal dimensions of a dynamic world environment. The course looks at how these forces impact busi-



ness firms and how institutions and policies are used to control business activity.

The nine electives allow students to develop additional depth in functional areas and freedom to concentrate their studies in a specific area of interest. Of the elective courses one must be a “capstone” elective, that is, one which utilizes material and concepts from a number of the functional areas of business. Examples include BA 440, Corporate Strategy and Public Policy, and BA 442, Entrepreneurship and New Venture Management. The student may also elect up to four courses from other graduate and professional schools at Duke. This allows the development of an individual program consistent with career goals.

The second-year program includes:

#### Fall Semester

BA 341	The International Environment Electives	3 units <hr/> 12 units
		15 units

#### Spring Semester

Electives	15 units
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## M.B.A. with an Accounting Concentration

Thanks to extensive financial support from the major public accounting firms, the Fuqua School of Business offers an M.B.A. degree with a concentration in accounting. Although Fuqua School students are not required to designate a major as part of the completion of the M.B.A. degree, those interested in professional careers in accounting may choose to concentrate in this area. Students who elect to pursue the concentration in accounting usually do so with the intent of entering the accounting profession and taking the CPA exam immediately after the completion of their degree. Certified Public Accountants are licensed by individual states, all of which use the Uniform CPA Examination. This entry level examination necessitates that students take a specified curriculum in order to be adequately prepared. Additional course requirements may be imposed by specified states for licensing in addition to those courses in the accounting concentration. Students enrolling in the program should determine the particular licensing requirements of the individual states in which they are interested in residing.

## The Doctor of Philosophy Program

The Ph.D. in Business Administration Program prepares candidates for research and teaching careers at leading educational institutions and for careers in business and governmental organizations where advanced research and analytical capabilities are required. The Ph.D. program places major emphasis on independent inquiry, on the development of competence in research methodology, and on the communication of research results. Students are introduced at the outset of the program not only to rigorous course work, but also to the research activities of the faculty and of other students. (A ratio of doctoral students-in-residence to faculty of less than one to one facilitates this opportunity to work closely with faculty.)

The program requires that doctoral candidates must acquire expertise in their chosen area of study and in research methodology. This competence may be gained from course work, participation in seminars, and independent study. Each student takes a comprehensive exam at the end of the second year or the beginning of the third year of residence. The final requirement is the presentation of a dissertation. The Ph.D. program usually requires four years of work beyond the bachelor degree. The student and his/her faculty committee determine the specific program of study, subject to the approval of the Director of the Doctoral Program.

# Special Programs

## CONCURRENT DEGREE PROGRAMS

The Fuqua School of Business offers combined degree programs with the School of Law, the School of Forestry and Environmental Studies, the Institute of Policy Sciences and Public Affairs, and the School of Engineering. By recognizing certain areas of study common to the M.B.A. and each of the other advanced degrees, duplication of instruction is eliminated and students are able to obtain the concurrent degrees in less time than would normally be required to obtain the two degrees separately. Students are normally required to take 51 units of business administration course work following admission to a concurrent degree program.

**The M.B.A.-J.D.** The concurrent M.B.A.-J.D. program requires four academic years of study with a full year in each school and two years of combined study that meets the requirements for both the M.B.A. and J.D. degrees. Students must apply for admission and be accepted by both the School of Law and the Fuqua School of Business. Additional information on the program may be obtained from the Director of Admissions, the Fuqua School of Business, Duke University, and the Admissions Office, Duke University School of Law.

**The M.B.A.-M.F. and the M.B.A.-M.E.M.** The concurrent Master of Business Administration and Master of Forestry or Master of Environmental Management degrees normally require three years of study. Students must apply for admission and be accepted by both the School of Forestry and Environmental Studies and the Fuqua School of Business. Additional information on the program may be obtained from the Director of Admissions, the Fuqua School of Business, Duke University, and the Director of Admissions, Duke University School of Forestry and Environmental Studies.

**The M.B.A.-A.M. in Public Policy Sciences.** The concurrent Master of Business Administration degree and Master of Arts degree in Public Policy Sciences normally requires two and a half to three years of study. The joint degree curriculum requires a minimum of thirty credits to be specified by the Institute of Policy Sciences and Public Affairs, and fifty-one credits to be specified by the Fuqua School of Business. Students must apply to and be accepted by both the Fuqua School of Business of Duke University and the Graduate School of Duke University. Additional information may be obtained from the Director of Admissions, the Fuqua School of Business, Duke University, and the Director of Graduate Studies, Institute of Policy Sciences and Public Affairs.

**Public Policy Option.** For those students interested in management careers in the public or not-for-profit sectors the Fuqua School of Business offers a public policy option. This option consists of a recommended set of M.B.A. elective courses to be taken in the Institute of Policy Sciences and Public Affairs. Students interested in pursuing this option must obtain the consent of the institute's faculty adviser of M.B.A. students and the consent of the M.B.A. program director.

**The M.B.A.-M.S. in Engineering.** The objective of the M.B.A.-M.S. in Engineering is to enable qualified students to acquire the expertise needed to assume leadership roles in the development and management of the complex technological and societal systems of the future. The program takes five semesters and, in most cases, an undergraduate degree in engineering is needed. Additional information about the Duke University School of Engineering and this program may be obtained by writing the Director, M.B.A.-M.S. Program, School of Engineering, Duke University, Durham, North Carolina 27706.

## COMBINED UNDERGRADUATE-PROFESSIONAL DEGREES

Also known as the "three-two" program, the combined undergraduate-professional degree program provides that the Bachelor of Science or Bachelor of Arts degree may be awarded to students who successfully complete three years in an approved curriculum in arts and sciences at Duke and also the first year of study for the Master of Business Administration. After two years at Duke and before transfer to the Fuqua School

of Business, students may apply for the three-two program through their academic dean. To be eligible for the combined program a student must successfully complete all baccalaureate requirements (except eight elective courses) and be admitted to the business school. Upon satisfactory completion of the first two semesters in the Fuqua School of Business, the student will be awarded a baccalaureate degree. The M.B.A. degree is awarded upon completion of the second year of the program.

#### **EXECUTIVE M.B.A. EVENING PROGRAM**

The Fuqua School of Business offers an M.B.A. degree for practicing managers in the greater Durham-Raleigh area. The program is designed for those who are seeking a broad educational base as preparation for more senior managerial positions, while continuing full-time job responsibilities. Major objectives of the program are to improve decision-making and management skills, and the effective utilization of these skills in resolving contemporary management problems.

The Executive M.B.A. Evening Program requires twenty-five months of study and includes six semesters of course work. A minimum of three years of postbaccalaureate work experience is required in order to be eligible to apply. Students interested in the program should contact the Director of the Executive M.B.A. Evening Program or the Director of Admissions, Fuqua School of Business, Duke University.

#### **EXECUTIVE M.B.A. WEEKEND PROGRAM**

The Fuqua School of Business also offers an Executive M.B.A. Weekend Program. The program is tailored to fit the schedule of the fully employed business executive who wishes to complete an M.B.A. degree without career interruption. It offers mature executives a broad perspective on general management responsibilities and includes the tools, concepts, and strategies required for senior leadership.

The Executive M.B.A. Weekend Program begins with an orientation program, and then meets Friday-Saturday every other weekend. The program requires twenty months of study and includes five semesters of course work. Students interested in the program should contact the Director of the Executive M.B.A. Weekend Program or the Director of Admissions, Fuqua School of Business, Duke University.

#### **EXECUTIVE EDUCATION**

The Fuqua School of Business offers a series of executive education programs designed for senior level executives. The programs vary in length from one week to four weeks and are tailored to the requirements of the participating group. The programs are residential, giving participants maximum involvement with each other and with the faculty.

Major programs include a four-week Advanced Management Program and two-week programs in General Management, Marketing Management, Strategic Human Resources Management, Management of Financial Resources in the Telecommunications Industry, Executive Program for Corporate Counsel, and a Bank Executive Program. Other recent offerings have included programs in Managerial Finance, Competitive Strategies, Cash Management, and Management of Technology and Innovation. Additionally, the Executive Education Department works with individual firms to develop and deliver programs tailored to their specific needs.

Further information on the School's executive education programs may be obtained from the Associate Dean for Executive Education, Fuqua School of Business, Duke University.

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*Admissions*



## Admissions

Anyone who holds a bachelor's degree from an accredited college or university is eligible to apply for admission to the Fuqua School of Business. No specific undergraduate major is deemed preferable to any other; however, the programs have been designed primarily for persons with training in the liberal arts, engineering, or the sciences. The Admissions Committee seeks those candidates with leadership potential who are prepared to compete successfully in a demanding course of study which requires logical and analytical reasoning. All entering students are expected to have a working knowledge of calculus, and applications are reviewed closely for this ability.

Prior work experience is not considered a requirement for the M.B.A.; however, the Admissions Committee recognizes the value of full-time work experience and considers it a positive factor in admission decisions.

**Application Information.** Complete instructions for filing an application are included with each application packet. Each applicant must submit the following to the Admissions Office before action can be taken:

1. **Application Form:** Careful completion of the application will ensure a thorough evaluation. Since it is desirable that the application be as complete as possible, additional sheets should be used if necessary.
2. **College Transcripts:** An official transcript from each of the colleges *attended* must be sent to the Admissions Office. Students who apply during their senior year must ensure that a final transcript be received by the business school prior to enrolling.
3. **Letters of Recommendation:** Three letters of recommendation are required and must be sent to the Admissions Office. Recent graduates or those in their senior year should have at least one letter submitted from persons familiar with their academic ability. Recommendations should be academic or professional, not personal.
4. **Graduate Management Admission Test:** Score reports must be sent directly from the Educational Testing Service to the Fuqua School of Business.
5. **Application Fee:** A nonrefundable fee of \$50 to cover processing must be submitted with the application.

Any questions or requests for application materials should be addressed to the Director of Admissions, The Fuqua School of Business, Duke University, Durham, North Carolina 27706, telephone (919) 684-5874.



**Application Deadline.** A continuous admissions policy is followed in the Fuqua School of Business in that admission decisions are made as applications are completed. Generally, applications will be reviewed and given a decision approximately six weeks after receipt. Application credentials should be on file in the school by April 1. Students completing applications prior to December 1 are eligible for early decision consideration and will receive decisions no later than January 31. The application file must be complete before action can be taken. A limited number of places in the class are available for applications completed after April 1; therefore, those wishing to apply after the normal deadline may do so, but it is to an applicant's advantage to apply early.

**Notification of Status.** When the applicant has been accepted, a letter of admission and an acceptance form will be sent. A nonrefundable tuition deposit of \$500 will be required to reserve a place in the class. The process of admission is not complete until the statement of acceptance and the tuition deposit have been returned to the Director of Admissions.

Applicants notified of acceptance prior to March 15 will be expected to make the \$500 tuition deposit by April 15. Applicants notified of acceptance after that date will be expected to make the tuition deposit within three weeks of the notification, or the place in the entering class will be forfeited. It should be reiterated that the tuition deposit is in all cases nonrefundable.

**Graduate Management Admission Test.** The Graduate Management Admission Test, required of all applicants, is administered by the Educational Testing Service. Detailed information about the test and application forms may be obtained by writing directly to the Educational Testing Service, Box 966, Princeton, New Jersey 08540.

The examination is administered at many centers throughout the United States and abroad. Arrangements to take the test at an established center must be made four weeks before the test date (six weeks prior to test date at established foreign centers). The examination is given four times a year. Special centers may be arranged for persons dis-

tant from established centers. Requests for such accommodations must be made at least eight weeks prior to the selected test date. Applicants are encouraged to take the test in October or January; those taking the test in March or June run the risk of having the class already filled by the time scores are available.

**Admission of Foreign Students.** Fully qualified students from outside the United States are welcome at the Fuqua School of Business. In applying for admission, the foreign student should submit, in addition to the above credentials, the following:

1. If the native language is not English, the results of the Test of English as a Foreign Language (TOEFL) must be submitted. Most successful applicants score approximately 600 or better on the TOEFL.
2. A statement certified by a responsible person that finances are sufficient to maintain the student during the stay at Duke University. The University does not at the present have fellowship or loan programs for foreign students.
3. A statement by a qualified physician describing the physical and mental health of the applicant.

The M.B.A. program is a two-year program and all students are expected to complete the required course work in the allotted time period. Foreign applicants should be prepared to carry the normal course load as described earlier in the bulletin. For this reason, applicants whose native language is not English should consider the merits of attending an intensive English language program or enrolling in summer school courses at a university in the United States prior to enrolling at Duke. Since the course work in the program will involve lectures, discussions, and group projects, a firm understanding of the language is required.

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*Financial Information*





## Tuition and Fees

The tuition for students in the Fuqua School for the year 1988-89 is \$6,750 per semester. All charges are due and payable at the times specified by the University and are subject to change without notice. A late registration fee of \$50 is charged any student not completing registration during the registration periods. An \$8 charge will be imposed for any student's check returned to the University unpaid.

After the beginning of classes, refunds will be made on a pro rata basis. Students may elect to have tuition charges refunded or carried forward as a credit for later study according to the following schedule:

1. Withdrawal before classes begin: full refund.
2. Withdrawal during the first or second week of classes: 80 percent.
3. Withdrawal during the third, fourth, or fifth week of classes: 60 percent.
4. Withdrawal during the sixth week: 20 percent.
5. Withdrawal after the sixth week: No refunds.

Tuition or other charges paid from grants or loans will be restored to those funds not refunded or carried forward.

If for any reason during the program, a student should find it necessary to request a reduction in the normal course load, this request will be reviewed by the Program Director. If the Program Director approves a reduction in the course load, the student has the right to request a corresponding reduction in tuition charges. These requests will be considered only for those students for whom the course reduction will necessitate enrollment in the Fuqua School in excess of four semesters for M.B.A. students or six semesters for Executive M.B.A. students. Students receiving approval for a tuition reduction will be charged on a pro rata basis.

**Payment of Accounts.** Following first enrollment in the Fuqua School, monthly invoices are sent each student by the Bursar's office. As a part of the agreement of admission to Duke University a student is required to pay all invoices as presented. A late payment charge will be assessed for all charges not paid in full by the due date, and certain restrictions may be applied. All students are charged the student health fee and student accident and sickness insurance coverage unless they file properly completed and signed waivers in the Bursar's office by the invoice due date.

**Late Payment Charge.** If the total amount due on the student's invoice is not received by the Bursar by the invoice due date, a penalty charge will be accrued from the billing

date of the invoice. The late payment charge is assessed at a rate of the 1 1/3 percent per month (16 percent per annum) applied to the past due balance. The past due balance is defined as the previous balance less any payments and credits related to the previous balance which appear on the invoice.

**Restrictions.** An individual will be in default if the total amount due is not paid in full by the due date. A student in default will not be allowed to receive a transcript of academic records, have academic credits certified, or receive a diploma at graduation. In addition, an individual in default may be subject to withdrawal from school.

**M.B.A. Association Student Activity Fee.** All students are assessed a \$40 nonrefundable fee to be used to support the activities of the M.B.A. Association.

**Athletic Tickets.** Athletic ticket books are available to graduate students. Purchase is optional, with payment due in the fall semester.

**Vehicle Fee.** Each student possessing or maintaining a motor vehicle at Duke University shall register it at the beginning of the academic year in the Duke Public Safety Office at 2010 Campus Drive. A student who acquires a motor vehicle and maintains it at Duke University after academic registration must register it within five calendar days after operation on the campus begins. Resident students are required to pay an annual fee for each motor vehicle.

At the time of registration of a motor vehicle the following documents must be presented: state vehicle registration certificate, valid driver's license, and a student identification card.

**Transcript Fee.** Students who wish to obtain copies of their academic records should direct requests to the registrar's office, 103 Allen Building. Ten days should be allowed for processing. A fee of \$2, payable in advance, is charged for each transcript copy.

**Student Health Fee.** All students are assessed a nonrefundable fee for the Student Health Service. The fee for 1988-89 is \$238 (\$119 per semester).

**Student Accident and Sickness Insurance.** The University has made arrangements for a Student Accident and Sickness Insurance Plan to cover all full-time students for a twelve-month period. For an additional fee a student may obtain coverage for a spouse and children. Although participation in this program is voluntary, the University requires all graduate students to be financially responsible for medical expenses above those covered by the University Student Health Program through the University Accident and Sickness Policy, a private policy, or personal financial resources. Students who have equivalent medical insurance or wish to accept the financial responsibility for any medical expense may elect not to take the Duke plan by signing a statement to this effect. *Each full-time student in residence must purchase this student health insurance or indicate the alternative arrangement.* The Student Accident and Sickness Insurance Policy provides protection twenty-four hours per day during the full twelve-month term of the policy for each student insured. Students are covered on and off campus, at home, while traveling between home and school, and during interim vacation periods. The term of the policy is from the opening day of school in the fall. Coverage, services, and costs are subject to change each year as deemed necessary by the University. The rates for 1988-89 are estimated at: student only—\$250 per year; and family plan (student, spouse, and children)—\$700 per year.

**Living Expenses.** The estimated living costs for the 1988-89 academic year are approximately \$7,200 for a single student. These estimates include room and board, and allowances for transportation and miscellaneous personal expenses.

**Debts.** No records are released until students have settled with the Bursar for all indebtedness. Failure to pay all University charges on or before the times specified by the University will bar the student from class attendance until the account is settled in full.

Students are expected to meet academic requirements and financial obligations, as specified elsewhere in this bulletin, in order to remain in good standing. Certain nonacademic rules and regulations must be observed also. Failure to meet these requirements may result in dismissal by the appropriate officer of the University.

## Financial Aid

The Fuqua School of Business endeavors to make it possible for qualified students to attend Duke even though their own resources may be insufficient. Financial aid is available in the form of fellowships and various loan programs. Applicants are expected to make use of personal savings, veterans' benefits, summer income, and loans from family and other outside resources prior to requesting aid. A student returning to school from the work force is expected to have saved toward the cost of his or her graduate education.

**The Fuqua School of Business Fellowships.** Each year a number of fellowships are available to incoming students. In general, the criteria for selection are prior academic achievement, demonstrated qualities of leadership, involvement in extracurricular activities and professional accomplishments. The awards are for two years of graduate study, ranging from partial tuition to full tuition. Requests for fellowships should be filed no later than March 1 to receive full consideration.

**Named Gift Fellowships.** The following awards are among the named gift fellowships offered by the Fuqua School of Business.

**A. F. Calabrese Scholarships.** John J. Mack, A.B. 1968 and a member of the Board of Visitors, established this endowed fund to honor A. F. Calabrese. The fund provides scholarships for students enrolled in the Fuqua School of Business who participated in intercollegiate athletics, preferably at Duke or the Catholic University of America.



*General Motors Scholarships.* Established in 1987 by the General Motors Foundation, awarded to students who demonstrate outstanding academic achievement and leadership qualities and have significant business experience.

*Herman and Johanna Vander Weide Scholarships.* This endowed fund was established by James H. Vander Weide, Research Professor at the Fuqua School of Business, in honor of his parents. The scholarship is awarded to a deserving Fuqua student.

*Howard C. Ris Scholarships.* This scholarship is awarded to a Fuqua student who has demonstrated ability and potential. This endowed scholarship is made possible by a gift from Howard C. Ris, (A.B. 1938) retired chairman of Ris Paper Company, Inc.

*John W. Rollins Scholar.* This scholarship/loan award is given annually to five second-year students. Rollins Scholars possess outstanding leadership qualities and strong records of academic achievement. This award was established in 1987 by John W. Rollins, Sr., Chairman and Chief Executive Officer of RLC Corporation, Wilmington, Delaware.

*Unisys Corporation Scholarships.* The recipients of this award are outstanding second-year students who have exhibited executive potential as reflected in participation in academics, student organizations, athletics, and work experience. Five Unisys Scholars are selected annually.

*William A. and Anne L. Klopman Scholarships.* This endowment fund was established by a donation from William A. and Anne L. Klopman, parents of three Fuqua graduates. Klopman is retired Chairman of Burlington Industries and is a member of the Fuqua Board of Visitors. the scholarship is awarded to a deserving Fuqua student.

*Xerox Scholarship Fund.* Established in 1987, the Xerox Scholarship Fund recognizes outstanding academic achievement and leadership.

*Pennwalt Foundation Scholarships.* Established in 1986 by the Pennwalt Foundation, these scholarships recognize outstanding academic achievement.

*Junior Achievement Scholarships.* A grant from the Little Family Foundation supports two awards annually having a stipend of \$5,000 each. These scholarships are given to company participants who have two or more years of full-time work experience.

*Martin L. Black Fellowships.* Established in 1974 through the gifts and donations of alumni and friends of Martin L. Black, Professor Emeritus and a faculty member in accounting at Duke for over forty years, these fellowships are awarded to M.B.A. students who plan to concentrate in accounting.

*Mead Scholarship.* These scholarships, established in 1977 by the donation of Mr. D. Richard Mead, Jr. (A.B., 1952), are given to students who, without such support, might otherwise not be able to afford the cost of continued graduate study.

*P. Huber Hanes Scholarships.* Established in 1939, through the donation of Mr. P. Huber Hanes, these scholarships are given annually to two Duke students admitted by the Fuqua School into the combined undergraduate-professional degree program (also known as the "three-two" program). One scholarship is given in the name of P. Huber Hanes and one is given in the name of P. Huber Hanes, Jr. These scholarships are given to students who have excelled academically and extracurricularly.

*Wachovia Scholarships.* These scholarships are awarded to students who show promise of academic excellence and leadership potential. They were established in 1975 by Wachovia Bank and Trust Company.

*Leo Burnett Company Scholarship.* This award is given to an individual student showing exceptional talent and ability in the areas of marketing and/or advertising and who demonstrates a financial need.

**Loan Programs.** The Fuqua School operates long-term loan programs and participates in the college work-study program. These programs are available to students who anticipate a need to supplement personal resources while attending school. Students who demonstrate need according to federal guidelines and information supplied on a Graduate and Professional School Financial Aid Service (GAPSFAS) form, are eligible to participate in these programs.

**Guaranteed Student Loans (GSL).** The Guaranteed Student Loan Program, sponsored by the U.S. Department of Education, enables graduate students who qualify on the basis of need to borrow up to \$7,500 per academic year. These funds may be borrowed directly from a bank, credit union, savings and loan association, or other participating lender. Subsidized by the federal government while the student maintains full-time enrollment, the current interest rate for new borrowers is 8 percent for the first four years of repayment and then increases to 10 percent. There is a 5 percent origination fee. The maximum repayment period is ten years. *You must file a Graduate and Professional School Financial Aid Service form (GAPSFAS) to determine qualifications for this loan.*

**Perkins National Direct Student Loans (NDSL).** The Perkins National Direct Student Loan (NDSL) program is a federally funded, campus-based aid program awarded on the basis of need. The Perkins NDSL program provides a low-interest (5 percent) loan program which is fully subsidized by the federal government during the student's period of enrollment. Repayment of principal and the assumption of 5 percent interest begin nine months after the termination of enrollment on at least a half-time basis. Federal law limits graduate students to a maximum borrowing capacity of \$18,000, inclusive of undergraduate borrowing. These loans are awarded by the Financial Aid Office and are part of a student's loan package.

**Supplementary Loans for Students (SLS).** This is a federally approved loan program for parents of undergraduates and for independent graduate and professional students, and is also available from a bank, credit union, savings and loan association or other participating lender. The maximum annual loan under this program is \$4,000, with an aggregate limit of \$20,000 for each student. The maximum interest rate is equal to the 91-day Treasury bill rate plus 3.75 percent, with a 12 percent cap, and there is an origination fee as well. Full-time student borrowers under this program can defer principal repayment while in school. However, interest accrual and repayment begin immediately after the note is signed. The treatment of interest payments may vary according to lender policies (some are monthly, some are quarterly).

**GradEd Financing.** This is a new private educational loan plan specifically designed for full or half-time graduate students pursuing an advanced degree in engineering, law, health professions or business administration. Qualified students may borrow \$1,500 to \$7,500 per academic year, up to a total of \$15,000. Total indebtedness when combined with other student loans may not exceed \$45,000. The interest rate is a variable rate equal to Treasury bill plus 3.5 percent, and students may opt for a flexible, graduated payment plan upon graduation. Students have up to 15 years to repay, depending on the amount of their outstanding loans under the GradEd plan, with only minimum monthly payments of accrued interest (or \$50, whichever is greater) while in school. Full-time students may defer payment of principal and interest for up to four years with a qualified co-maker.

**College Work-Study Program.** The College Work-Study Program is federally funded and supports the employment of students while they are in school. Students must meet federal need standards to qualify for participation. With work-study, a student's salary is paid jointly by the federal government and the Fuqua School. Funding from this program is available for students only when employed by the Fuqua School. Students given work-study allocations are responsible for securing their own employment within the school, which offers a variety of employment opportunities for interested students.

**Financial Aid Application.** Financial aid decisions are made as applications are completed, with the first awards being granted beginning in February. All students applying for financial aid must complete the Financial Aid Application and a GAPSFAS form. The GAPSFAS application may be obtained from the Graduate and Professional School Financial Aid Service, Box 2614, Princeton, New Jersey 08540, and *should be filed as early as possible after January 1*, in order to ensure its arrival at Duke by March 1. Applications received by March 1, including receipt of the GAPSFAS, will be assured of full consideration for all available resources. Federal law requires verification of income data submit-

ted prior to January 1. Students are therefore encouraged to delay GAPS FAS filing until after January 1. The GAPS FAS contains sections to be completed by the applicant, by the spouse or spouse-to-be, and by the applicant's parents. Applicants who will not be considered independent by federal standards must have the parents' questionnaire section completed. All financial aid applicants are required to provide a *signed copy of their most recent income tax statement* before any loans can be processed. Dependent students must also include a copy of their parents' income tax statement.



# Career Services and Placement





## Career Services and Placement

The Office of Career Services and Placement initiates a comprehensive program of career planning early in the first year of study. It is recognized that students enter the program with varying degrees of career maturity depending on previous education and experience. Therefore, the career planning program is organized to meet a wide range of developmental needs.

Activities conducted by the Placement Office staff offer the opportunity to move through a logical progression beginning with self analysis, followed by preparation for placement and the summer job search and finally focusing on sophisticated career decision making as it relates to the world of work. The methods used to deliver these services include individual advising sessions, small group and workshop presentations and required large group lectures and seminars.

In the self analysis process, instruction is given and materials are used to allow the student to identify, qualify, and quantify individual skills, interests, and abilities in an in-depth manner. Once defined, these skills and abilities become the foundation for resume writing and the interview process.

Much attention is given to the development of a solid set of credentials and the preparation of personal references. To assure quality resume construction, students attend an instructional session, participate in a resume writing workshop, and receive individual critiques from placement professionals. Upon resume completion, focus is shifted to developing strategies for the job search process beginning with summer internship.

The Placement Office offers opportunities for meaningful summer employment between the first and second year of study through employer interviews on campus, employer referrals to the placement staff and the development of individually guided strategies.

The culmination of the self analysis, job search, and decision making activities followed by the summer internship permits students to begin the second year of study with well developed career decisions prior to the ultimate job search.

The Fuqua School's annual Job Fair provides an excellent opportunity for students and employers to discuss job prospects and career responsibilities in a relaxed and informal atmosphere. Second-year students focus on specific careers within a specific industry or company while the first-year class usually gathers as much information as possible on career alternatives. As a result of the program, many students arrive at early decisions concerning their area of interest. The types of firms represented are broad based to offer a variety to the student.

Special Interest Programs (SIPS) allow the employer a more focused setting in which to talk about job opportunities. These programs are usually held late in the afternoon in one of the building's lounges, and usually include a light buffet. The format is very flexible and informal. Most sessions open with prepared remarks or an audio-visual presentation, followed by a question and answer period. The program promotes a mutual give and take situation between students and employers.

The Placement Office also cosponsors programs and events in cooperation with student organizations.

## 1986-1988 On-Campus Recruiting Organizations

- Adaron Group  
Allied Signal, Inc.  
Amerada Hess Corporation  
American Airlines, Inc.  
American Express  
American Management Systems, Inc.  
Amoco Corporation  
Arthur Andersen & Company  
Arthur Young & Company  
AT&T Communications  
Backer Spielvogel Bates  
Bali Co. (Division of Sara Lee)  
Bank of Boston  
Bank of New York  
Bankers & Shippers Insurance Co.  
Bankers Trust Company  
Barnett Banks, Inc.  
Bear Stearns & Co., Inc.  
Beecham Products  
Bell Atlantic Network Services, Inc.  
Booke & Company  
Booz, Allen & Hamilton, Inc.  
Borg-Warner Chemicals  
BP America (formerly Standard Oil Co.)  
Burger King Corporation  
Burlington Industries Inc.  
Burroughs Wellcome  
Caltex Petroleum Corporation  
Campbell Soup Company  
Capital Holding Corporation  
Capital South  
Carolina Power & Light Co.  
Carolina Securities  
Central Carolina Bank & Trust  
Chase Manhattan Bank  
Chemical Bank  
Cherokee Sanford Group  
Chrysler Corporation  
Circuit City Stores  
Citicorp  
Citicorp Savings  
Coastal Group, Inc.  
Coca Cola, USA  
Coleman Lew & Associates, Inc.  
Combustion Engineering  
CompuServe, Inc.  
Connecticut Mutual  
Consolidated Rail Corp. (CONRAIL)  
Contel Corporation  
Continental Illinois Bank  
Coopers & Lybrand  
Cresap, A Towers-Perrin Company  
Cryovac  
CSX Equipment Group  
Cushman & Wakefield, Inc.  
D'Arcy Masius Benton & Bowles, Inc.  
Data General Corporation  
DDB Needham Worldwide  
Dean Witter Reynolds, Inc.  
Deloitte Haskins & Sells  
Donaldson, Lufkin & Jenrette  
Drackett Company  
Drexel Burnham Lambert, Inc.  
E. I. DuPont De Nemours & Co., Inc.  
Eaton Corporation  
Eli Lilly & Company  
Elizabeth Arden, Inc.  
Emerson Electronics & Space Division  
Energy Management Associates  
Equifax, Inc.  
Ernst & Whinney  
Exide Electronics  
Exxon, USA  
Fairmont Hotels  
Federal Bureau of Investigation  
Federal Home Loan Bank Board  
First Boston Corporation  
First National Bank of Chicago  
First National Bank of Maryland  
First Union National Bank  
First Wachovia Corporation  
Florida Power & Light Co.  
Ford Motor Company  
FPL Group, Inc.  
Frito-Lay, Inc.  
General Electric Co.  
General Electric Credit Corp.  
General Foods  
General Mills, Inc.  
General Motors Corporation  
General Telephone of the South  
GKN—Parts Industries  
Glaxo, Inc.  
Goldman, Sachs & Company  
Goodmark Foods  
GTE Corporation  
Guardsmark, Inc.  
H. J. Heinz Company  
Hallmark Cards, Inc.  
Hanes Knit Products (Division of Sara Lee)  
Harbridge House  
Harris Corporation  
Hay Group  
Hewitt Associates  
Hewlett Packard  
Howard Hughes Medical Institute  
IBM Corporation  
International Paper Company

Investment Corporation of Virginia  
 Irving Trust Company  
 Jennings, Ryan, Federa & Co.  
 Johnson & Johnson  
 Joseph E. Seagram & Sons, Inc.  
 K. S. Sweet Assoc.  
 Kidder, Peabody & Co., Inc.  
 Kimberly-Clark Corporation  
 Kraft, Inc.  
 Leo Burnett USA  
 Manufacturers Hanover Trust Co.  
 Marine Midland Bank  
 Mark Twain Bancshares  
 Marriott Corporation  
 Maryland National Bank  
 Maybelline USA  
 McCormick & Company, Inc.  
 McDevitt & Street Company  
 McDonnell Douglas Network Systems  
 McKinsey & Company, Inc.  
 Mellon Bank, N.A.  
 Menasha Corporation  
 Mercer Meidinger Hansen, Inc.  
 Merck, Sharp & Dohme  
 Merrill Lynch-Capital Markets  
 Metropolitan Life  
     Insurance Company  
 Michael P. Doyle, Inc.  
 Microsoft Corporation  
 Milliken & Company  
 Mobil Oil Corporation  
 Montrose Capital Corporation  
 Morgan Stanley & Co., Inc.  
 Motorola, Inc.  
 Nabisco Brands, Inc.  
 National City Corporation  
 NCR Corporation  
 Neptune Measurement (Schlumberger)  
 Noel Dunivant & Associates  
 Norfolk Southern Corporation  
 North Carolina National Bank  
 Northern Telecom, Inc.  
 Northwestern Mutual Life Insurance  
 Offutt Securities, Inc.  
 Ogilvy & Mather  
 Oracle Corporation  
 Otis Elevator Company  
 PaineWebber, Inc.  
 Parke-Davis (Division of Warner Lambert)  
 Peat, Marwick, Main & Company  
 Pepsi-Cola Company  
 Personal Products Company  
     (Johnson & Johnson)  
 Peterson & Co.  
 Peterson, Howell & Heather, Inc.  
 Pfizer, Inc.  
 Philip Morris USA  
 Pittsburgh National Bank  
 Planning & Design Associates  
 Price Waterhouse  
 Procter & Gamble Company  
 Progressive Companies  
 PruCapital, Inc.  
 Prudential Asset Management Co., Inc.  
 Prudential Capital Markets  
 Prudential Insurance Company of America  
 R. J. Reynolds Tobacco USA  
 Riggs National Bank  
 Roadway Express, Inc.  
 Rochester Telephone Corporation  
 Rohm & Haas Company  
 Ronald A. Norelli & Company  
 Ryder Systems, Inc.  
 Salomon Brothers  
 Sami-Burke, Inc.  
 Sara Lee—Direct Marketing  
 Sara Lee Hosiery Group (LEggs)  
 Schering Plough—Memphis  
 Schering Plough—US Pharmaceutical Operations  
 Scientific Atlanta  
 Scott Consulting Group  
 Scott Paper Company  
 Security Pacific National Bank  
 Shearson Lehman Brothers, Inc.  
 Siecor Corporation  
 Smith Barney, Harris, Upham & Co., Inc.  
 Smith Breeden Associates  
 Sonoco Products Company  
 Springs Industries, Inc.  
 Squibb Pharmaceutical Products  
 State Street Bank & Trust Company  
 Target Stores  
 Tenneco Oil  
 The North Carolina Alternative Energy Corp.  
 The Northern Trust Company  
 The Philadelphia National Bank  
 The Quaker Oats  
 The Travelers Insurance Companies  
 Thomson McKinnon Securities, Inc.  
 TIAA-CREF  
 Toronto Dominion Bank  
 Touche Ross  
 Towers, Perrin, Forster & Crosby  
 Trammell Crow Company  
 TRW, Inc.  
 Union Camp Corporation  
 Unisys Corporation  
 Vista Chemical Company  
 Washington Gas Light  
 Westinghouse Electric Corporation  
 Westvaco  
 Weyerhaeuser Company  
 Xerox Corporation

*Student Life*



## Living Accommodations

Most M.B.A. students live off campus in housing or apartments not owned by the University (see the section entitled Off-Campus Housing). However, Duke University has several residential facilities in which some single graduate and professional students live. On-campus married student housing is not available. Married students should refer to the section entitled Off-Campus Housing.

**Town House Apartments.** Town House Apartments, located about three blocks from the main East-West Campus bus line, is a thirty-two-unit complex, which houses single graduate and professional school students. These apartments are more spacious than most apartments found on campus or in Durham. Because of their location away from the academic facilities, students find that these apartments offer a change from normal campus life and activities. They are available for continuous occupancy throughout the calendar year.

Each air-conditioned apartment includes a living room, a master bedroom, a smaller bedroom, a bath and a half, and an all-electric kitchen with a dining area. Spacious closets and storage spaces are provided within each apartment. A swimming pool, located in the center of the complex, is open during the late spring and throughout the summer months.

Occupants must make arrangements with the local utility companies to pay for electricity, gas, and telephone service. These companies usually require a deposit when initial applications for service are made. Utility companies should be contacted prior to arrival as it usually takes several days to obtain service.

**Central Campus Apartments.** Duke University owns a 500-unit apartment complex. Apartments are available throughout the calendar year for continuous occupancy to single students attending graduate and professional school.

Located in the center of the complex is a swimming pool (open during the late spring and throughout the summer months), a convenience store, and a pub.

All Central Campus Apartments are completely furnished by the University. An itemization of furnishings is included with the floor plans sent out in the application packet.

All utilities—water, heat, air-conditioning, and electricity—are provided. Telephones, which are provided in preinstalled locations in each apartment, are services through Duke University's Tel-Com telephone service. Central Campus Apartments' residents are responsible for having their phones connected.

Efficiency, two-bedroom, and three-bedroom apartments are rented to single students. Efficiency units are very limited in number and are generally not available to new students. Spaces in apartments for single students are provided on an individual basis with each student paying rent per academic term to the University. This method permits students to share apartments with others of their choice. When this is impractical, the Department of Housing Management strives to place persons with similar interests together.

**Modular Homes.** Duke University owns six prefabricated modular homes which are located one block from the main East-West Campus bus line. Three of these three-bedroom homes are occupied by single graduate and professional students. The homes, completely furnished, provide more privacy than most apartments and are available to single graduate and professional students for continuous occupancy throughout the calendar year.

In addition to having three bedrooms, each home contains a full bath, an all electric kitchen, a dining area, and a living room. Sliding glass doors in the living room open onto a wooden deck. An outside storage area is provided in addition to spacious closets within the home. Except for the bathroom, kitchen, and dining area, the homes are completely carpeted and paneled.

Residents of the modular homes are responsible for making arrangements with local utility companies for gas, electricity, and telephone services.

**Application Procedures.** When students are informed of their acceptance to the business school they will also receive a postcard on which to indicate preference for University housing. This postcard should be returned to the Department of Housing Management. Detailed information on the types of accommodations and application forms will be forwarded to the accepted student. Assignment to all University housing is made on a first-apply, first-assigned basis and is not guaranteed.

**Off-Campus Housing.** The Department of Housing Management maintains a listing of rental apartments, rooms, and houses provided by property owners or real estate agencies in Durham. These listings are available in the department only; during the summer an assistant is available to answer questions and aid students in their attempts to obtain housing off-campus. Information on commercial complexes in the Durham area may be obtained by indicating a preference for off campus housing on the postcard which you receive with your acceptance packet. Except for assuring that owners sign a statement of nondiscrimination, off-campus property is in no way verified and neither the University nor its agents negotiate between owners and interested parties.

The search for accommodations should begin as soon as possible after acceptance to the business school. A visit of two or three days will allow the opportunity to make use of the off-campus service and to inspect personally the availabilities.

## Food Services

Duke University Food Services (DUFFS) operates a variety of dining facilities including “all you can eat” cafeterias, a la carte restaurants, fast food facilities, salad bars, elegant seated dining restaurants, and an on-campus pizza delivery service.

Graduate and professional students may choose to pay for food purchases in cash, or they may opt to open a prepaid account. There are two accounts which a student may open—a food only dining plan and a flexible spending account. The flexible spending account may be used to purchase any food items sold by DUFFS, any items sold in the University stores, and to purchase beer and wine, where available.

For more information about opening either a flexible spending account or a dining account, contact the Auxiliary Services contract office at (919) 684-5800.

In addition to the above University food services, the Fuqua School of Business has its own cash-only snack bar, The Kiosk, which serves a limited menu of light snacks, sandwiches, and beverages during normal business hours.

## Other Services

**Bus Service.** Free on-campus bus service is provided by the University connecting East, West, North, and Central Campuses, Science Drive and intermediate on-campus locations. Bus service is also provided between Duke Manor and Chapel Tower Apartments and the campus, during the academic year only. Printed schedules are available at the Bryan Center Information Desk, the Housing Management service offices, and

from the transportation office located at 712 Wilkerson Avenue, just off East Campus behind Brightleaf Square. Schedules are also posted at each of the major bus stops.

Route, schedule, and employment information is available weekdays by calling 684-2218.

**University Stores.** University Store operations on campus sell textbooks, school supplies, health and beauty items, room accessories, gifts, clothes, and food items. Items may be purchased with cash, check, Visa or Mastercard, or on the Duke Card flexible spending account (see description under Food Services).

The Bryan University Center is the location of four of the stores' operations: the University Store sells school, office and computer supplies, and gift items with Duke University's official logos; the Duke University Bookstore sells textbooks, technical reference books, study aids, and computer software; the Gothic Bookshop stocks new fiction and nonfiction titles; and the Lobby Shop sells magazines, newspapers, health and beauty aids, and snack foods.

## Student Activities

**M.B.A. Student Association.** The association serves as liaison between the students and faculty and administration in both academic and nonacademic matters. The structure of the association includes several standing and ad hoc committees dealing with concerns such as admissions and placement, computer and library facilities, intramural sports participation, alumni, and social events.

**Cocurricular Activities.** Graduate students at Duke University are welcome to use such University recreational facilities as swimming pools, tennis courts, and golf course, and to affiliate with the choral, dance, drama, music, and religious groups. Doctoral students may become junior members of the American Association of University Professors and may affiliate with Phi Beta Kappa and social fraternities.

A full program of cultural, recreational, and religious activities is presented by the Office of Cultural Affairs, the Duke University Parish Ministry, the Duke University Union, the Office of Student Activities, and recreational clubs. The Duke University Union sponsors a wide range of programs through its committees which are open to all segments of the campus community. Included are touring Broadway shows; rock, jazz, and pop concerts; speakers; films; a film-making program; the largest fully student-run television station in the country; art exhibits in two galleries; and a broad program in crafts located in Southgate Dormitory and the Bryan University Center.

The University Center complex includes the new Bryan University Center, which houses the Information Center, two drama theaters, a film theater, lounges, stores, meeting rooms, games room, rathskeller, art gallery, and other facilities; the West Union which includes dining facilities; and Flowers Building, which includes student publications, Page Auditorium, and the University box office.

Inquiries should be directed to the Intramural Office, 105A Card Gymnasium; the Office of Cultural Affairs, 107 Page Building; Duke Chapel; the Duke University Union, Bryan University Center; or the Office of Student Activities, Bryan University Center.

Full information regarding the scheduling of major events and programs for the entire year will be found in the Duke University *Annual Calendar*; detailed and updated information for the fall and spring semesters in the *Weekly Calendar*, available each Friday; updated information for the summer session in the *Summer Session Calendar*, published at the beginning of each summer term; and the *Duke Chronicle*, published each Monday through Friday during the fall and spring and each Wednesday during the summer. Copies of the Duke University calendars may be obtained at the information desk, Flowers Building, or the calendar office, Page Building. Also during the summer, the *Summer Session Newsletter* is published weekly by the summer session office and is available at convenient locations.

**Intramural and Recreational Sports.** The Duke recreational and intramural programs provide all students with opportunities to participate in some form of healthful, infor-

mal, and competitive physical activity. In a typical year, more than 3,000 students compete for many intramural titles and trophies. Each year Duke, the University of North Carolina, North Carolina State, and Wake Forest meet in the annual Big Four Intramural Day.

The men's and women's intramural programs include many different activities (e.g., bowling, cross-country, golf, handball, horseshoes, table tennis, volleyball, soccer, softball, and track). In addition, special events in other areas of interest are held. Various performing clubs, including one for water ballet, offer the student opportunities to take part in extracurricular activities. Through coeducational intramurals, the student is encouraged to participate on a less competitive level, promoting relaxed social and physical activity. Opportunities for competition between men and women are provided in areas that include archery, badminton, basketball, softball, racquetball, squash, table tennis, tennis, volleyball, and water polo.

The University's varied athletic and recreational facilities and equipment are available for use by students. The facilities for recreation include a golf course, lighted tennis courts, three swimming pools, squash and racquetball courts, three gymnasiums, a weight training room, outdoor handball and basketball courts, an archery range, horse-shoe courts, an all-weather track, numerous playing fields, jogging and exercise tracks, and informal recreational areas. More than thirty sports clubs dealing with gymnastics, scuba diving, sailing, cycling, crew, riding, fencing, football, frisbee, ice hockey, kayaking, lacrosse, badminton, karate, rugby, soccer, and other activities are available to interested students.

**Graduate and Professional Student Council.** The Graduate and Professional Student Council is the representative body for the students of graduate departments and professional schools. The council provides a means of communication between schools and between graduate students and the administration. The council selects graduate students for membership on University committees. Representatives of each department and officers of the council are selected annually.

**Religious Life.** The Duke Chapel is open daily for prayer and meditation. The Sunday morning worship in the Chapel at 10:55 A.M. is the central focus for University religious life. The Chapel Choir is open to those who wish to sing in it. The Benjamin N. Duke Memorial Organ is played Monday through Friday from 12:30 P.M. to 1:30 P.M. Special guest recitals are also scheduled. The ministers and other members of the Chapel and Religious Life staffs are available to provide counseling help and other assistance as needs arise.

## Health Care

**Medical Care.** The aim of the Student Health Service is to provide any medical care and health advice necessary to the student as a member of the University community. The health service maintains the Student Health Services Clinic located in the Pickens Building on West Campus and the University Infirmary on the East Campus. Emergency transportation can be obtained by the Duke campus police. A separate fee for the Student Health Service is assessed.

The Student Health Services Clinic offers the student outpatient services, routine laboratory and X-ray examinations in the clinic for the treatment of acute illness or injury, and advice and assistance in arranging consultation for medical treatments. Fees for such consultations or treatments must be paid by a student who is not covered by an insurance plan.

The facilities of the University Infirmary are available to all currently enrolled full-time students in residence during the fall and spring. Hospitalization in the University Infirmary is provided for treatment of acute illness or injury as authorized by the Student Health Services Clinic physician. Students are required to pay for their meals while confined to the infirmary.



The resources of the Duke University Medical Center are available to all Duke students and their spouses and children. Any bills incurred at Duke Hospital or any other hospital are the responsibility of the student, if not covered by an insurance plan. The Student Health Program does not provide health care for spouses and dependent children of married students. Coverage of the married student's family is provided in the University's Student Accident and Sickness Insurance Plan for an additional fee. Refer to the chapter, "Financial Information," for complete information on this plan.

**Counseling and Psychological Services.** CAPS provides a comprehensive range of counseling and psychological services to assist and promote the personal growth and development of Duke students. The professional staff is composed of clinical social workers, psychologists, and psychiatrists experienced in working with young adults. Among services provided are personal, social, academic, and career counseling. A number of short-term seminars or groups focusing on skills development and special interests such as coping with stress and tension, fostering assertiveness, enriching couples' communication, and dealing with separation and divorce are also offered. A policy of strict confidentiality is maintained concerning information about each student's contact with the CAPS staff. Individual evaluation and brief counseling/therapy as well as career and skills development seminars are covered by student health fees. There are no additional charges to the students for these services. Appointments may be made by calling 684-5100 or visiting CAPS, 214 Old Chemistry Building.

# *Academic Procedures and Information*



## Registration

Students enrolled in the Fuqua School of Business must register each semester until all degree requirements are completed. After receiving notification of admission to the school and returning a statement of acceptance of admission, the student must register for the term indicated in the admission letter. New matriculants register during orientation week at the designated times. Each student must complete a course card listing the course work to be taken during the semester. In the case of independent studies, courses outside the school and overloads, it will be necessary to obtain the permission of the instructor and the M.B.A. program's director. The student then presents this course card to registration officials for enrollment in the selected courses. After the first registration, a student must register for subsequent semesters at the regular stated time for registration. Currently enrolled students who fail to register at the first scheduled registration period for the subsequent semester incur a penalty for late registration.

**Late Registration.** All students are expected to register at the times specified by the University. A late registration fee of \$50 is charged any student registering late.

**Change of Registration.** During the first *week* of the semester, registration may be changed with approval.

## Academic Requirements for the M.B.A. Program

**Grading.** The grading scale for M.B.A. students is: Superior Pass (*SP*)—4.0; High Pass (*HP*)—3.5; Pass (*P*)—3.0; Low Pass (*LP*)—2.5; and Fail (*F*).

**Continuation Requirements.** An M.B.A. student is expected to complete all courses approved by the Program Director for a given semester and attain a GPA of 3.0 to proceed to the next semester of the program.

Any student who receives a grade of fail (*F*), or a grade point average of less than 3.0 after any term, will be subject to academic performance review. The student's academic standing is determined during the performance review by the respective Program Director and the faculty of the Curriculum Committee. Any mitigating circumstances that may have inhibited a student from making satisfactory progress will be heard and evaluated at that time.

In order to be certified as making satisfactory progress toward the degree, a student enrolled in the M.B.A. program must:

1. Complete all courses approved by the Program Director for a given semester and attain a GPA of 3.0 or: have been reviewed by the Program Director and faculty of the Curriculum Committee, where it must be determined that mitigating circumstances did inhibit the student from meeting all course requirements or attaining a 3.0 GPA. Under these circumstances the student will be allowed to continue the program with a GPA below 3.0 and still be considered as making satisfactory progress toward the degree.
2. Complete the program according to the following schedule: a minimum of 33 credits in the first academic year of the program, and 63 credits by the end of the second academic year of the program.

Students enrolled in the Executive M.B.A. Evening Program must complete a minimum of 26 units during the first academic year and 24 units during the second academic year.

Students enrolled in the Executive M.B.A. Weekend Program must complete a minimum of 18 units during the first academic year and 27 units during the second academic year.

Students on official leaves of absence from any program will be exempted from these requirements for the duration of that leave.

**Graduation Requirements.** An M.B.A. student who has successfully completed all program requirements and has earned a grade point average of at least 3.0 will be graduated.

**Exemptions.** It is possible to obtain an exemption from any of the first year required courses. This may happen in one of two ways. The first way is by passing an exemption exam in the subject matter of that course. The second way is administrative, that is, transcripts of entering students are reviewed prior to their arrival and exemptions are offered in areas where prior satisfactory course work is documented. This second method of exemption is applicable only to daytime M.B.A. students.

**Standards of Conduct.** Duke University expects and will require of all its students' cooperation in developing and maintaining high standards of scholarship and conduct. The University wishes to emphasize its policy that all students are subject to the rules and regulations of the University currently in effect or which are put into effect from time to time by the appropriate authorities of the University.

Any student in accepting admission indicates a willingness to subscribe to, and be governed by, these rules and regulations and acknowledges the right of the University to take such disciplinary action, including suspension and/or expulsion, as may be deemed appropriate, for failure to abide by such rules and regulations or for conduct adjudged unsatisfactory or detrimental to the University.

The Fuqua School of Business has established its own Honor Code which is overseen by a Judicial Board comprised of three faculty and three student members. The Honor Code governs conduct and the integrity of student scholarship.

## Commencement

Graduation exercises are held once a year in May. At this time degrees are conferred and diplomas are issued to those who have completed requirements by the end of the spring semester.

Those who complete degree requirements at the end of the fall semester or by the end of a summer term receive diplomas dated December 30 or September 1, respectively. There is a delay of about one month in the mailing of September and December diplomas because diplomas cannot be issued until they are approved by the Academic Council and the Board of Trustees. A special conferring of degrees for executive M.B.A. students is held each year in October.

## Other Information

**Student Records.** Duke University adheres to a policy permitting students access to their student records, with the exception of confidential letters of recommendation received prior to January 1, 1975, and certain confidential financial information. Students may request review of any information which is contained in their student records and may challenge the content of their records by appropriate procedures. An explanation of the complete policy on student records may be obtained from the Associate Registrar.

No information contained in student records (academic or otherwise) is released to persons outside the University or to unauthorized persons on the campus, without the consent of the student. A student grants consent by signing a form which authorizes the release of data. Specific consent is required for the release of information to any person or organization outside the University, and it is the responsibility of the student to provide the necessary authorization and consent. Official transcripts may be sent by the University Registrar at the signed request of the student and upon receipt of a \$2 processing fee.

**Reciprocal Agreements with Neighboring Universities.** Under a plan of cooperation between Duke University and the University of North Carolina at Chapel Hill, the University of North Carolina at Greensboro, North Carolina Central University in Durham, and North Carolina State University at Raleigh, students properly enrolled in the Fuqua School of Business during the regular academic year, and paying full fees to this institution, may be admitted to a maximum of two courses per semester and four courses total at one of the other institutions in the cooperative plan. Under the same arrangements, students in the graduate schools in the neighboring institutions may be admitted to course work at Duke University. All interinstitutional registrations involving extra-fee courses or special fees required of all students will be made at the expense of the student and will not be considered a part of the Duke University tuition coverage.

**Identification Cards.** Graduate students are issued Duke University identification cards which they should carry at all times. Students must validate the card each semester with the University Registrar. The cards are the means of identification for library privileges, athletic events, and other University functions or services open to them as University students. Students will be expected to present their cards on request to any University official or employee. The cards are not transferable, and fraudulent use may result in loss of student privileges or suspension. A student should report the loss of a card immediately to the Registrar's office. The cost of a new identification card is \$5.

*Courses of Instruction*



# Master of Business Administration

## CORE COURSES—300 SERIES

These courses are required to be taken in the first year except for The International Environment (BA341), which is typically taken in the second year. Students passing exemption exams may substitute electives in their first year. Unless specified otherwise, each course is worth three units of credit.

**300. Managerial Economics.** Considers how the actions of business firms, consumers and the government—operating within a price system in a decentralized market economy—answer such basic resource allocation questions as what will be produced how it will be produced, who will consume what is produced, and what resources to divert from present consumption to increase future consumption. The impact of various types of market structures (such as perfect competition, monopoly, and oligopoly) on economic efficiency will be discussed. Provides the student with an ability to view resource allocation problems within a constrained optimization framework and with some practice in applying marginal analysis.

**301. Economic Environment of the Firm.** This course provides an analytical framework for understanding the economic forces that shape business decisions. It examines the behavior of unemployment, inflation, the trade balance, interest rates, and exchange rates. Special emphasis is placed on government policy towards these variables and current economic problems.

**303. Microeconomics for Managers.** Provides an alternative to BA 300 for those students with intermediate or advanced backgrounds in mathematics. Both courses address the same topics. They develop the students' ability to apply economics to understanding the market environment in which managerial decisions are made and provide a structure for the managerial decision-making process. Prerequisites: intermediate or advanced knowledge of business mathematics.

**311. Statistical Analysis for Management.** Examines structures for managerial decision making under conditions of partial information and uncertainty. After developing a foundation in probability theory, the course extends this foundation to a set of structures and methodologies for the analysis of decision problems. Included are topics in probability, classical inference, and multivariate analysis.

**312. Quantitative Analysis for Management.** Examines the principles and techniques of building quantitative models to aid managerial decision making. Special emphasis is placed on utilizing models for structuring and analyzing resource allocation problems and decision problems under uncertainty. Topics include linear programming, decision analysis, and simulation.

**318. Computer Laboratory.** Introduces the student to the personal computer as an aid to executive decision-making. The course covers the operation of the personal computer, and the use of software including electronic spread sheets, statistical analysis, and word processing. 1 unit.

**320. Organization Behavior.** Provides a study of organizations and their environment and the social and psychological foundations necessary to understand the behavior of individuals within organized settings. Emphasis is given to managerial strategies which enhance organizational effectiveness. Topics include individual and small group behavior, goal setting and adaptation, organization structure, and leadership.

**330. Financial Accounting.** Introduces the student to the types of information requirements imposed on the firm by agencies in its environment and develops an understanding of the activities of the firm within the framework of a financial accounting system designed to satisfy these information requirements. Emphasis is given to the study of financial accounting, reporting, and measurement problems from a theoretical and an applied basis, using cases and topical problems in financial accounting as a foundation for the learning experience.

**331. Managerial Accounting.** Focuses primarily on managers who are users rather than preparers of accounting information. Examines the use of accounting information in its major functions of planning, control, and product costing. Specific topics include cost estimation, budgeting, standard costing, control and performance evaluation, cost allocation, information systems, data limitations, and rational decision making using accounting information.

**340. Business Policy and the Management Experience.** Enables the student to apply the skills obtained in earlier courses to managing a business enterprise. The first portion of the course deals with issues like competitive analysis. In the course's second portion, student teams are responsible for the management of firms in a computerized simulation which has the characteristics of a large, consumer-oriented industry. Emphasis is placed on developing an overall corporate strategic plan, implementing the strategy, and communicating the plan and results to boards of directors. Decisions must be made concerning the fundamental areas of operations, marketing, finance, and human resource management. These decisions are made in light of the strategic objectives set forth in the plan. Each firm makes several formal oral and written presentations to its board of directors which is composed of faculty and executives from the local business community. The use of personal computers for analysis and report preparation is encouraged.

**341. The International Environment.** This course seeks to analyze the major social, political, cultural, economic, and legal dimensions of the changing world environment, the institutions and policies through which different communities control the activities of the business firms and the impact of these forces on the business firm. The environment is treated holistically and the nation state is analyzed, assuming the actions of national governments are made to achieve national strategies and that these actions are the most important determinants of the business environment.

**342. Social, Legal, and Political Environment of the Firm.** Examines the social, legal and political environment within which the business firm exists and must function. Issues of ethics, values and corporate culture are probably the least studied subjects in the formal training of entrepreneurs and executives. Class discussions explore issues raised by society's expectations of the corporation as well as corporate responses to these expectations. The course is organized around films, case discussions, guest speakers and lecture discussions. Recent topics have involved business ethics, public perception of business, business-media relationships, product safety and liability, corporate philan-



thropy and volunteerism, employment at will, the regulatory climate of business, political action committees and the ethics of advertising.

**343. Managing the Regulatory Process.** Provides the student with an ability to understand and manage private sector problems and opportunities created by government programs. By examining the processes used by the legislative, executive, and judicial branches to create, implement, and enforce laws and regulations, the prospective manager will be prepared to compete effectively in markets controlled or affected by government activities. The course will consider the management problems created by the United States antitrust laws and various government agencies regulating environmental hazards, energy, and health and safety.

**344. International Strategy.** The course starts with a discussion of the reasons for location of production in the world, laying the conceptual foundations for three levels of analysis: the country (is U.S. competitiveness declining and if so, why?); the industry (what causes globalization of industries?) and the firm (product life cycle and firm-specific advantages). It then extends competitive analysis to a multinational context, analyzing the globalization of markets and the way market factors, technological shifts, governmental policies and other factors cause a shift in the comparative advantage of firms. The third part of the course deals with government/business interaction in both developed and developing countries and its impact on strategic choices and implementation. The final part of the course deals with organizational issues of managing across borders from the point of view of the headquarters and that of the subsidiary. The topics of locus of control and organizational structure and the management of resource flows across boundaries are analyzed.

**345. Legal Environment of the Firm.** Considers the legal environment of the firm with emphasis on the legal system, the process by which laws are formulated and changed, and the type and forms of legal constraints imposed on firms. Also examined are major legislation, court cases, and regulation by federal agencies which affect the firm's decisions. Prerequisite: second-year standing in the M.B.A. program or consent of the instructor.

**350. Financial Management.** Provides an overview of corporate finance, financial markets, portfolio diversification and asset pricing. Since firms must understand financial instruments and how the market views them before making decisions about which ones to use, fundamental issues and models of risk, return and asset pricing are presented. Exercises and cases require students to project short-term and long-term financial needs, value bonds and stocks, and critique capital budgeting techniques. Futures and options markets are introduced and students briefly manage portfolios of those contracts. Major corporate finance issues of debt and dividend policies are examined.

**360. Marketing Management.** Provides an overview of the marketing function in business firms by acquainting students with the fundamental issues and decisions involved in planning and managing marketing activities. Attention is given to the strategic marketing decisions of new product development, product policy, pricing, advertising and communications, marketing research, personal selling, and channels of distribution. Major emphasis is placed on developing an understanding of the underlying forces which influence marketing decisions, including buyer behavior, competitive marketing activity, organizational considerations, and governmental regulation.

**370. Operations Management.** Surveys issues in the design, operation, and control of the process by which goods are manufactured and services delivered. Specific topics of study include the analysis of different kinds of production processes, managing the workforce, planning production and managing materials, managing quality, choosing new capacity, dealing with technological advance, dealing with vertical integration, and combining operations choices into a coherent strategy.

**388. Business Communication.** Develops ability to speak and write effectively for communicating in business settings. Emphasis on developing public speaking and learning appropriate business writing strategies and style. 2 units.

## ELECTIVE COURSES—400 SERIES

These courses are typically taken by students with second-year standing but may be taken earlier with permission of the instructor. These courses are generally offered each year, but there may be additions or deletions in response to student and faculty interest. Unless specified otherwise, each course is worth three units of credit.

**410. Decision Analysis.** Managers must operate in an environment with many uncertainties, and they are faced with a variety of risky choices involving many conflicting factors. They need to take account of uncertainties and multiple objectives and to select appropriate risk postures. Decision analysis provides a framework for analyzing decision-making problems under uncertainty by breaking them down into more manageable parts. The study of decision analysis involves some formal methods, but perhaps even more important, it suggests a useful way of thinking about and approaching risky decisions.

**411. Operations Research Methods.** Surveys the methodologies of operations research and shows how they can be applied to decision-making situations. The course will be primarily concerned with selecting which tool to use in various situations, rather than algorithm details. Topics to be covered include dynamic programming, stochastic programming, integer programming, nonlinear programming, Markov chains, inventory theory, and linear model formulation.

**412. Statistical Forecasting.** Increased access to computer data bases and modeling tools presents the modern manager with opportunities and challenges to use statistical data analysis in forecasting, planning, and decision-making. This course will cover the use of major statistical forecasting techniques, including multiple-regression and time-series models, that are applicable in many functional areas of business. It will emphasize hands-on computing with a microcomputer statistics package.

**421. Power and Politics in Organizations.** Examines the interplay of power and politics in organizational settings with particular emphasis on the use of influence strategies in managerial decision making. Specific topics to be included are understanding the role of power in organizations, its sources and conditions for use, political strategies and tactics and specific organizational issues such as resource allocation, career politics, organizational change and retrenchment. Relevant research and theory will be examined but students will be encouraged to make practical application in decision-making situations through case analyses and discussion, and the development of personal skills in the politics of management.

**422. Dynamics of Bargaining.** Explores the processes of bargaining and negotiation; the dynamics of interpersonal and intergroup conflict; and understanding of theory and research related to processes of influence, negotiation, and conflict management. A second part will emphasize skill development through extensive case analysis, role playing, and simulation.

**423. Human Resource Management.** Provides an integrative and comprehensive understanding of issues and challenges involved in the management of human resources in contemporary, complex organizations. The topics discussed include employee selection and placement, training and development, compensation and reward systems, performance evaluation, career development, human resource planning, international human resource management, and the contribution of human resource management to overall organizational effectiveness. The cultural and legal contexts of human resource practices are also addressed. Perspectives for this course are from the line or operating managers primarily. The roles of the personnel department and the personnel specialists are evaluated in terms of their contribution to the human resource function within the operations of the line manager.

**424. Managerial Effectiveness.** Explores what is known about effective management and leadership in organizations, and helps prospective managers identify and improve their own leadership skills. To achieve these purposes the course will alternate between a review of past research on organizational leadership and practical skill development. Readings and class discussion will provide exposure to various models of effective

managerial behavior. In addition, much of the class time will be structured so that students will have an opportunity to experiment with, observe, and practice the skills being considered. Some of the topics reviewed include leadership style, organizational politics, interviewing, setting objectives and appraising performance, planning and time management, improving group effectiveness, and conflict management. Prerequisite: second-year standing in the M.B.A. program or consent of instructor.

**425. Managerial Decision Making.** Focuses on helping managers to understand and improve decision making. The primary objective is the development of skills in the use of computer-based decision aids that exploit the intellectual strengths of humans while overcoming their cognitive limitations. Of particular interest will be the techniques of risk and decision analysis. Case discussions, experiential exercises, as well as lectures, will be used to help develop an appreciation of the potentials of various decision aids. Prerequisite: second-year standing in the M.B.A. program or consent of instructor.

**426. Organizing Business Activities.** Organizing individuals' activities and decisions to perform tasks, solve problems, and achieve goals in business. Choices on the patterns and relations in people's activities and decisions that coordinate and control people to produce desired ends are studied. Different kinds of organizing decision problems and their relations to one another are identified and analyzed. The efficiency and effectiveness of the part or the whole of the organization that results from these decisions are analyzed for different environments. Organizing problems of divisionalized, matrix, functional, and other organizations are investigated. Organizing problems of departments, project teams, sections, and smaller units are also studied. The object is to understand the nature of the problems of organizing so that the solutions that emerge match the part or the whole of the organization to its goals, and to make both these fit the internal and external environments. The work includes readings, cases, and examinations of actual contemporary organizing problems and decisions. This course is intended for the student who is interested in getting it together, making it happen, writing the play-book, and staying with it. Prerequisite: second-year standing in the M.B.A. program or consent of instructor.

**427. Industrial Relations.** Introduces students to the concept of an industrial relations system and the constraints that the choice of such a system places on a manager. The course begins with an in-depth analysis of the traditional North American unionized system, moves through the means by which this system is presently evolving, and concludes with a survey of some alternative systems. This course uses a union model as a means of introducing issues relevant to all industrial relations systems.

**428. Managing Change and Innovation.** Managing innovation, new technology, new product development, and research in the changing enterprise. Topics include the management of project selection, project implementation, manpower and resource allocation among competing activities, budgeting, productivity measurement and enhancement, conflict and coordination among organizational subunits, adaptive organizational subunits, adaptive organizational forms, devising incentives and reward schemes for engendering new ideas, and risk taking. The course will use a combination of readings, lecture/discussions, cases, and guest lectures by managers. Students are encouraged to do field studies. Prerequisite: second-year standing in the M.B.A. program or consent of instructor.

**429. Managing Information in Organizations.** Examines the way individuals use information to manage organizations. Modern organizations are organized by their effectiveness in the creation and use of information. Information is gathered, stored and transmitted in order to make decisions, implement decisions, control organizations, motivate and reward individuals. Information is analyzed from power and cultural perspectives. Computer-based information is a part of the total information system. The best mix of computer and noncomputer information is analyzed from technical and behavioral perspectives. Examples are drawn from accounting, finance, marketing, and human re-

source management as well as policy issues. The class mixes lecture/discussion and case studies and/or field studies.

**430. Financial Accounting Standards and Analysis I.** Examines problems of asset and liability valuation and the related issues of income determination from the perspective of the professional accountant. The information needs of financial statement users are emphasized. Frequent reference is made to professional accounting pronouncements. Prerequisite: M.B.A. standing, one course in financial accounting, and one course in managerial accounting.

**431. Financial Accounting Standards and Analysis II.** Examines advanced topics in financial accounting from the perspective of the professional accountant. Specific attention is devoted to the accounting and reporting problems of complex corporate enterprises. Topics include consolidated financial statements, partnerships, and not-for-profit accounting. Prerequisite: BA 430.

**433. Management Planning and Control.** The aim in this course is more effectively to use information in management, through, for example, statistical models for forecasting, probability models for control, and management science models for planning. The course also explores, from a more qualitative perspective, broad issues of control and performance evaluation in service industries, not-for-profit organizations, and multinational operations.

**434. Corporate Financial Reporting.** Focuses on significant issues of interest to users of publicly available accounting information, including financial statements. Issues of current interest in the valuation of assets and liabilities and income determination are considered. Emphasis is placed on the effects of alternative accounting measurement and reporting procedures on users' decision models.

**435. Management Information and Control Systems.** Examines the role of the Accounting Information System (AIS) in supporting the management control system and the strategic planning process within the organization. Specific attention is given to the problems of design and operation of the AIS, the role of information in planning and control, technologies of information systems, dynamics of information flows and the problem of fraud in the computer-based AIS.

**436. Internal Control, Auditing, and Information Systems Analysis.** Studies the techniques available to evaluate the reliability of an existing information techniques available to system. An evaluation is made of information flows, aggregation techniques and other topics necessary to evaluate the credibility of information reported from a particular data gathering system. Topics include audit objectives from an internal and external standpoint, cost of information, standards, and other topics relevant to both internal and external auditing problems.

**437. Financial Statement Analysis.** Explores the use of financial statement information within the context of modern finance and accounting research. Empirical studies are introduced to demonstrate how financial statement data interface with nonaccounting data such as stock prices, industry factors, and macroeconomic variables. Major topics include the statistical properties of accounting numbers in time series and cross-sectional analyses, the role of financial statement information in efficient capital markets and in portfolio decisions, and the association between accounting numbers and security returns. The course also examines financial information used in credit granting decisions and in predicting bond ratings and bankruptcy.

**440. Corporate Strategy.** This course focuses on the major phases of the strategic planning process within business organizations. Considerations involving the various functional areas of management are synthesized to permit meaningful decisions concerning the product-market posture of the firm. Topics relevant to the design and implementation of strategic planning are explored within a number of different contexts: entrepreneurial, innovative, diversified, mature, and professional.

**442. Entrepreneurship and New Venture Management.** Provides an intensive, tutored field study of the formation of new business ventures. Students work in teams to



develop market, strategic, operations, and financial aspects of original ideas toward completion of a full business plan. Entrepreneurs and new venture investors advise students on the progress of their work and evaluate final plans.

**445. Business Planning.** Presents corporate, security, and tax issues for analysis and resolution through examining a series of problems involving common business transactions. The problems will include such topics as the formation of closely-held and public corporations, stock redemption, the sale of a business, merger and other types of combination transactions, and recapitalization, division, and dissolution of corporations.

**446. Federal Income Taxation.** Deals with the basic concepts of federal income taxation with emphasis on gross income inclusions and exclusions, deductions, credits, and computations of gain, loss, and basis upon dispositions of property.

**450. Short-Run Financial Management.** Examines the financial management and control of a firm's short-term assets and liabilities. Topics include cash management, collection and disbursement techniques, management of the firm's short-term investment/borrowing portfolio, cash forecasting, receivables management, and the management of the firm's bank relationships.

**451. Advanced Corporate Finance.** Examines in depth the major financial decisions faced by the firm. Topics include dividend policy and capital structure decisions of the firm, as well as the pricing of various financial instruments. While the major emphasis of the course is on the traditional and recent theories regarding corporate financial decision-making, much time is devoted to the consideration of empirical evidence supporting/refuting the various theoretical propositions. Time permitting, some special topics such as mergers and acquisitions and lease financing will be considered.

**452. Money and Capital Markets.** Considers the structure and behavior of capital markets. The course includes a discussion of the institutional framework of the American capital market as well as the major international markets, although the emphasis is on the theoretical foundation for analyzing interest rates and funds flow in those financial markets. Included among the topics is an extended discussion of monetary theory, the term structure of interest rates, and the analysis of risk in financial markets.

**453. Investment Management.** Focuses on the fundamentals of security valuation and portfolio selection in an informationally efficient and efficiently-functioning capital market. Topics covered include the structure and operation of securities markets, external and internal market efficiency, portfolio theory, risk and return in asset pricing, the role of arbitrage, and the measurement of portfolio performance, with emphasis being placed on the application of financial theory. The types of security markets discussed include stocks, bonds, financial futures and options. Both theory and empirical evidence are considered. Students are required to carry out homework exercises involving the use of microcomputer software.

**454. Management of Financial Institutions.** Develops a framework for understanding financial intermediation and its role of providing the conduit for the flow of funds through the economy. Considers the sources and uses of funds in the economy and how commercial banks and other financial institutions act as agent on behalf of both savers and users of funds. Examines the structure and operations of the Federal Reserve System and its effect on commercial banks.

**455. Futures and Options Markets.** Focuses on the use of futures and option contracts in the financial management of corporations and the management of security portfolios. In the futures area emphasis is placed on interest rate futures, currency futures, and stock index futures. General pricing of agricultural futures is also studied as well as the use of agricultural and other contracts in diversifying security portfolios. In the options area emphasis is placed on the use of stock options in the financial management of stock portfolios. Interest rate options and the use of option pricing models in the formulation of optimal option investment strategies are also studied.

**456. Corporate Finance.** Provides a conceptual framework for corporate financial decision-making. Under the assumption that corporate financial manager's act so as to

maximize shareholder wealth, the course focuses on the two major types of decisions faced by the financial manager—what assets to acquire and how to finance the acquisition for those assets. Major topics thus include capital budgeting under uncertainty, the capital structure and dividend policy decisions of the firm, and short-term asset and liability management. Careful consideration is given to the risk-return tradeoff involved in the decision-making process. Course concepts are applied through analysis and presentation of case materials.

**457. Entrepreneurial Finance: The Investment Decisions.** Certain investment decisions undertaken by a business organization, big or small, may be regarded as being truly entrepreneurial in the sense that the decisions have significant strategic implications, and that relevant information may be fragmentary, incomplete, or very uncertain. To illustrate such risky investment decisions, one might consider a proposal to change production technology, a proposal to enter a new market environment, or a proposal to locate facilities abroad. Such decisions tend to require significant resource commitments where the management of risk is critical to the success of a venture. Approximately the first half of this course will be conceptual in nature with the objective of designing an analytical framework for use in decision making. The second half of the course will be applications oriented with a series of case studies being used to explore this area of management activity.

**458. Equity Markets: Trading and Market Making.** Focuses on the structure and regulation of the equity markets, the operations of dealers and specialists, and the performance of the markets. The objective is to convey an understanding of how prices are determined in the marketplace. Particular attention is also given to how investor trading strategies should take account of the costs of trading, liquidity, and the rules and protocols by which orders are handled and translated into trades.

**459. Investment Banking.** Develops a fundamental understanding of the many roles of investment banking firms in the capital marketplace. As financial intermediaries, investment banks originate, underwrite, and distribute new security issues, serving both their issuing clients and their investing customers. Investment bank services may also include advising clients, arranging lease financing, arbitraging profit opportunities, placing unregistered securities, and providing broker and dealer services. Topics include markets and market making, and syndication and underwriting. Corporate finance decisions pertaining to investment banks (e.g., mergers and tender offers) are also considered.

**460. Advanced Marketing Strategy.** Considers in greater depth the process of strategic planning in the marketing function and its relation to corporate strategy. Offers an opportunity to sharpen and extend analytical skills in marketing as well as to synthesize understanding of the managerial, organizational, and environmental aspects of marketing activity.

**461. Marketing Research.** Considers the process of identifying and generating information from research as input to marketing decision making. Emphasis given to the perspective of the marketing manager in determining whether additional information is needed and, if so, how appropriate information should be acquired. Topics include problem definition, research budgeting, research designs (survey, observational, experimental), sampling, methods of data collection, data analysis, and interpretation.

**462. Consumer and Buyer Behavior.** Provides an opportunity for advanced study of the behavior of buyers of consumer and industrial goods/services. Objectives include (1) increasing the prospective manager's sensitivity to and understanding of buyers and the psychological, sociological, and anthropological forces which shape their behavior, and (2) enabling the student to apply this knowledge in arriving at improved marketing decisions.

**463. Advertising Management.** Deals with issues and problems in planning and controlling advertising activities in the firm, largely from the perspective of product managers and general marketing managers who must develop strategies for communicating with customers and other important publics of the firm. Attention is devoted to the setting

of advertising objectives, budget appropriation, copy/message strategy, media strategy, advertising research and evaluation, and government regulation. Emphasis is placed upon behavioral analysis of target audience utilizing social-psychological and communication theories.

**464. Product Management.** Develops further insights into the process and policies which guide the firm's offering of products to the market place. Topics include the problem of merging market needs with corporate resources; product concept and positioning; systematic approaches to new product development; branding; packaging; product abandonment. The basic point of view is strategic in that product decisions are an integral part of overall marketing strategy decisions. Interfunctional management aspects are also considered.

**465. Industrial Marketing.** Provides students with the conceptual foundations and analytic techniques used in marketing products and services to businesses. Marketing issues are approached through complementary industry and firm analyses. An industry analysis characterizes the economic forces driving relationships among competitors, suppliers, and customers. Within the context of the industry, the appropriate strategy for the firm is determined. In addition to cases and readings, students are expected to complete one industry analysis using largely library sources. Following the industry analysis they are expected to write a strategic analysis of one firm within that industry.

**466. Channel and Distribution System Management.** Subjects of study are the formulation and solution of problems involving strategies and decisions on the firm's relations with other elements that make up its different market environments. Decision problems on the choice of forms and levels of cooperation and competition with other organizations are analyzed. The efficiency of different forms and structures of marketing channels and distribution systems is discussed and determined. Specific problems studied include: decisions on the allocation of marketing activities and resources to different levels and operations in the channel; the coordination of these activities and levels; the coordination and control of advertising, selling efforts, prices, etc. of sellers and resellers, and the various decisions on transaction components such as delivery time, credit terms, advertising allowances, managerial help, exclusive distribution and others. Lectures, discussions and cases.

**470. Operations Planning and Control.** Examines detailed tactical problems facing operating managers. The emphasis is on specific planning and control problems and on techniques for solving them. Topics include materials planning and inventory control, aggregate and detailed scheduling, and manufacturing software packages.

**471. Manufacturing Strategy.** Investigates the strategic operating policy options available to manufacturing companies, with the goal of learning why some companies' manufacturing operations are a greater competitive threat than others. The concept of factory focus will be examined in detail and aspects of the Japanese philosophy of manufacturing will be explored. The remainder of the course will take three different, and distinct, approaches to strategic issues. The first is an "industry" approach where different manufacturing strategies prevailing within a particular industry will be examined. The second is a "decision" approach where company handling of a specific type of decision (e.g., new capacity, vertical integration, process modernization) will be contrasted across industries. The third is an "external environment" approach where the impact on manufacturing of a particular external force (e.g., regulation, energy price inflation), will be assessed.

**472. Operations Management in the Service Sector.** Examines the strategic and tactical problems associated with the management of diverse service systems such as hospitals, banks, transportation companies, restaurants, and professional service firms. The course focuses on designing or improving service delivery.

**473. Management of Technology.** Examines the multiple impacts that technology has on the firm. Major issues of technology management will be discussed, including innovation, competitiveness, technology assessment, R & D strategy, positioning, manufac-



turing technologies and productivity. These issues are encountered not only in the technology-based company, but in any organization. Also covered will be the incorporation of a new technology into an existing industry and the new entrepreneur-based companies that are formed to work with a technology. The course will primarily focus on management issues, using as models new technologies such as biotechnology, superconductivity, microelectronics and fiberoptics.

**480. The International Environment.** Examines the environment in which multinational firms operate. It includes a discussion of current policy issues such as balance of payments, trade policy, and economic development. Special emphasis is given to the theory of the multinational firm and its role as a participant on the economic scene. That role is evaluated from the perspective of both the firm itself and the countries in which the firm operates.

**482. International Finance.** Examines the international economic environment in which firms and institutions operate. Provides a basic understanding of the primary market forces that shape a nation's trading and financing arrangements and how they affect the financing and investment decisions of firms and other agencies. Unravels the influence of monetary policy on foreign exchange markets, international capital markets, and a nation's balance of payments, and explains how trade affects real growth, resource allocation, and specialization among countries, with the objective of developing more careful analytical tools for decision-making by multinational corporations.

**490. The Practicum.** Gives the student a significant experience in applying the concepts, theories, and methods of analysis learned in the program to a real, complex problem of an economic enterprise. It should include the analysis of a situation and the explicit formulation of a problem. The important task of identifying and specifying the problem is an integral part of the course. The practicum report should propose a solution to the problem and should contain the supporting explanation and logic. The solution should be one that can be implemented, not requiring unavailable resources. Prerequisite: second-year standing in the M.B.A. program and consent of the Director of the M.B.A. Program and instructor.

**491.1—9. Special Topics in Management.** Permits the study of special topics in management on an occasional basis depending on the availability and interests of students and faculty. Examples of special topics include project management, legal and tax aspects of entrepreneurship, real estate finance, labor negotiations and arbitration, and knowledge management.

**499. Independent Study.** Allows the student an opportunity to engage in a study of special topics on an individual basis under the supervision of a faculty member. Prerequisite: second-year standing in the M.B.A. program and consent of the Director of the M.B.A. Program and instructor.

## Doctor of Philosophy

These 500-level courses are available for Ph.D. students and qualified M.B.A.'s in the areas of accounting, marketing, operations management, finance, and organizational behavior. Typically one in each area will be offered each year. These courses are open to M.B.A. students desiring rigorous depth in an area with permission of the instructor. Unless specified otherwise, each course is worth three units of credit.

**510. Bayesian Inference and Decision.** This course focuses on methods of Bayesian inference and statistical decision theory, with emphasis on the general approach of modeling inferential and decision-making problems as well as the development of specific procedures for certain classes of problems. Topics include subjective probability, Bayesian inference and prediction, natural-conjugate families of distributions, Bayesian analysis for various processes, Bayesian estimation and hypothesis testing, comparisons with classical methods, decision-making criteria, utility theory, value of information, and sequential decision making.

**525. Behavioral Decision Theory.** This course is concerned with how people process information when making judgments and choices, and how knowledge of the psychology of decisions can be used to improve decision processes. Five basic topics of research will be covered: (1) thinking about uncertainty, (2) multi-attribute preferences, (3) risk taking, (4) problem structuring, and (5) group decision making. Examples of behavioral research will be drawn from the areas of accounting, finance, marketing, medicine, organizational theory, and public policy, as well as the more basic behavioral sciences.

**531. Financial Accounting Seminar.** Examines the nature of published financial statement information and its relationship with various economic variables. The list of related variables might include stock market data, bankruptcy filings, and the actions of various users of financial statement information, including management, investors, creditors, and regulators. The focus is on the current research methodologies and research efforts used to analyze the above relationships, as well as consideration of the underlying theoretical concepts. A background in masters-level accounting and finance is assumed.

**532. Management Accounting Seminar.** Examines information systems and their use in facilitating management decision making and organizational control. Emphasis will be placed on the appropriate research methodologies and paradigms including information economics, decision theory, and organizational theory. Topics include but are not limited to budgeting, incentive systems, performance evaluation, variance investigation, and cost allocation.

**541. Organization Seminar—A Micro Focus.** Focuses on individual and small group behavior in organizations. Theories of motivation, decision making, interpersonal behavior, group processes, and leadership are discussed. The course emphasizes a variety of research approaches and methods. The course will also include presentation of behavioral research by faculty members of the Fuqua School of Business and by other researchers.

**542. Organization Seminar—A Macro Focus.** Focuses on the organization and the subunits which make up the organization. Theories of organization, structure, decentralization, divisionalization, functional area integration, task design, incentives and rewards, information systems, and decision rules are discussed. These issues are developed with an orientation toward their choice and design for high performance. Throughout the course, there is an emphasis on appropriate research approaches and methods to investigate theoretical issues in various research settings. The course will also include presentation of research by faculty members of the Fuqua School of Business and by other researchers.

**551. Corporate Finance Seminars.** Introduces the student to research areas in corporate finance. The emphasis of the course will depend on the research interests of the instructor, with one or more of the following topic areas to be explored in depth: capital budgeting, capital structure, mergers and acquisitions, financing alternatives, dividend policy, valuation methods, cost of capital, international finance, and cash management.

**552. Investment Seminar.** Surveys research in the investment area and explores in depth one or more problems in which research is currently active. The emphasis will be determined by the instructor from one or more of the following areas: valuation of risky securities, capital asset pricing model and extensions, capital market efficiency, portfolio theory, options and warrants, investment management, microstructure of security markets, and futures contracts.

**561. Seminar in Quantitative Research in Marketing.** Presents an overview of the quantitative techniques which are important in marketing research. Each model and technique will be examined in considerable detail so as to permit an understanding of its assumptions, structure, and usefulness. Topics covered will include the general data analysis techniques as well as models from advertising, new products, and pricing decisions.

**562. Seminar in Behavioral Models in Marketing.** Examines the development of research in consumer behavior. Major emphasis is given to theoretical developments and

empirical research with a range of articles assigned for each topic. Topics include motivation and personality, perceptual processes, information search, choice processes, attitudes and persuasion, learning, and influence in consumer choice.

**571. Operations Strategy Seminar.** Pursues the latest developments in the strategy of operations in both the manufacturing and service sectors. Topics include the focused factory concept, Japanese manufacturing philosophy, technological policy toward new process development and toward new product introduction, vertical integration, choice of capacity and location, industry analysis, and the impact of government regulation. The seminar emphasizes the development of hypotheses about strategic topics and the empirical means by which they can be tested.

**572. Seminar in Operational and Technological Tactics.** Examines current issues in the day-to-day management of manufacturing and service delivery systems. Topics include material requirements planning, capacity requirements planning, quality of work life projects, productivity measurement and enhancement, implementation of new product introductions and production process modifications, quality assurance, production planning and scheduling, and logistics. The seminar concentrates on (1) the substance of recent developments, (2) the generation and test of hypotheses about tactical issues, and (3) the applicability of various optimization techniques to the advance of operation tactics.

**597. Dissertation Research.** For students actively pursuing research on their dissertation. Prerequisites: student must have passed the preliminary examination and have the consent of the Director of the Doctoral Program and the instructor. Credit to be arranged.

**598. Independent Study.** Allows the doctoral student the opportunity to engage in study or tutorial on special topics on an individual basis under the supervision of a faculty member. Prerequisites: Doctoral Program standing and consent of the Director of the Doctoral Program and instructor. Credit to be arranged.

**599. Directed Research.** Allows the doctoral student to engage in individual research projects under the supervision of a faculty member. Prerequisites: Doctoral Program standing and consent of the Director of the Doctoral Program and instructor. Credit to be arranged.

*Faculty*



## Faculty

The faculty of the Fuqua School of Business has developed a national reputation for both high quality teaching and research. One of the unique characteristics of this faculty is its diverse set of interests and professional backgrounds. Often an individual faculty member's interests will span two or three different areas of expertise. This diversity of interests ensures that the students will be exposed to wide-ranging views of the environment in which they will live and work after completing their educational experience.

The student-faculty ratio in the school is maintained at a level permitting development of close professional relationships and encouraging individual assistance in academic and professional relationships. Activities are planned which maximize student-faculty interaction. Some of these are career-related while others are more involved with research and teaching activities.

A brief description of the background and main areas of interest of the faculty follows:

**Yair Aharoni**, D.B.A., *J. Paul Sticht Visiting Professor of International Business*; B.A., M.A. (Tel Aviv University); Ph.D. (Harvard University).

Professor Aharoni is Director and CEO of Jerusalem Institute of Management and is on the faculty of Tel Aviv University. He has also held appointments as Visiting Professor at Columbia, Stanford, Berkeley, and Boston University, among other schools. Professor Aharoni has served as a consultant for government and business organizations and has conducted numerous executive education programs. His teaching interests lie in the areas of business policy and strategy, business and environment, international business accounting, and comparative management. He serves on the editorial boards of several journals, including *International Studies in Management*, and is an Associate Editor of *Management Science*.

**Alison H. Ashton**, Ph.D., *Associate Professor of Business Administration*; B.S. (Louisiana State University), M.P.A., Ph.D. (The University of Texas at Austin).

Professor Ashton's academic interests are in behavioral decision theory and accounting. Her published research includes studies of auditors as decision makers, as well as managers as users of accounting information. She has taught behavioral decision theory and auditing at New York University, and has also taught at the University of Texas at Austin and the University of Alberta. She currently serves on the editorial board of *The Accounting Review*.

**Robert H. Ashton**, Ph.D., CPA, *Professor of Business Administration and Area Coordinator for Accounting*; B.S. (Middle Tennessee State University), M.B.A. (Florida State University), Ph.D. (University of Minnesota).

Prior to joining the Duke faculty, Professor Ashton was on the faculties of New York University and the University of Texas at Austin, and he held a visiting position as the Winspear Foundation Professor at the University of Alberta. His principal research interest involves behavioral decision theory, especially as it relates to accounting and auditing issues. He also does research on the effectiveness and efficiency of external audits and other topics. He has published a book, a monograph, and numerous articles in leading journals, and he serves on various editorial boards.

**Sheldon D. Balbire**, Ph.D., *Adjunct Associate Professor of Business Administration*; B.S. (Carnegie Institute of Technology), Ph.D. (University of North Carolina at Chapel Hill).

Professor Balbire's primary teaching interests are in the areas of corporate finance, corporate financial markets, and the management of financial institutions. His current research is centered on the rate structure of money and capital market instruments, as well as a number of projects relating to commercial bank management.

**Helmy H. Baligh**, Ph.D., *Professor of Business Administration*; B.A. (Oxford University), M.B.A., Ph.D. (University of California, Berkeley).

Professor Baligh joined the Duke faculty after teaching at the University of Illinois. His major research is in the analysis and design of economic structures for both business and social purposes. He has participated in the development of the Master of Business Administration programs at Duke and at the University of Illinois with emphasis on curriculum. His publications include *Vertical Market Structures* (with Leon E. Richartz) and several articles in the areas of transportation, hospital administration, marketing, economics, and organization structure design. He teaches in the fields of marketing, economic decision making, and organization design.

**Joseph Battle**, Ph.D., *Professor of the Practice of Management (on leave)*; B.S. (North Carolina Central University), M.S., Ph.D. (University of Michigan).

After serving as Special Assistant to the President of Shaw University, Professor Battle joined the Duke faculty, teaching in the areas of mathematics, probability and statistics, and economics. Research and consulting interests include the evaluation of federally funded poverty agencies with the Research Triangle Institute and local Durham organizations.

**James R. Bettman**, Ph.D., *Burlington Industries Professor of Business Administration, Director of the Ph.D. Program, and Area Coordinator of Marketing*; B.A., M.Phil., Ph.D. (Yale University).

Prior to joining the Fuqua School of Business, Professor Bettman taught at the Graduate School of Management, University of California, Los Angeles. He is the author of *An Information Processing Theory of Consumer Choice* as well as numerous articles in academic journals. Professor Bettman has also served as a consultant to government agencies, as a member of editorial boards of scholarly publications, and as a participant in numerous forums. He is currently coeditor of the *Journal of Consumer Research*.

**William Boulding**, *Assistant Professor of Business Administration*; B.A. (Swarthmore College), Ph.D. (University of Pennsylvania).

Professor Boulding is interested in model building relevant to managerial decision making. His current work focuses on the efficiency of various strategic options available to the firm. His teaching interests lie in the areas of marketing strategy and marketing management.

**Douglas T. Breeden**, Ph.D., *Associate Professor of Business Administration and Co-Director of the Future and Options Research Center*; S.B. (M.I.T.), M.A., Ph.D. (Stanford University).

Prior to joining the Fuqua School of Business faculty, Professor Breeden taught at Stanford University, the University of Chicago, and M.I.T. Professor Breeden's teaching and research interests are in the area of investments, futures, and options. He has published in the major finance journals and is Associate Editor of the *Journal of Financial Economics* and the *Journal of Financial and Quantitative Analysis*.

**Marian C. Burke**, Ph.D., *Associate Professor of Business Administration*; B.A. (College of William and Mary), M.S. (Virginia Commonwealth University), Ph.D. (University of California, Los Angeles).

Professor Burke's teaching interests include marketing strategy and planning, competitive analysis, and product management. Her current research activities are focused on an examination of the decision rules used by marketing managers in selecting marketing strategies and on issues of advertising effectiveness.

**Richard M. Burton**, D.B.A., *Professor of Business Administration*; B.S., M.B.A., D.B.A. (University of Illinois).

Professor Burton's primary research interests are in the design and management of organizations. His research is concerned with the design of the firm for coordinated operations across the functional areas of marketing, strategy, production, finance, and information systems. He teaches courses in organization design, management of innovation and research, and corporate structure and planning. Recent consulting experience includes projects for Burroughs Wellcome Corporation and Bell Canada.

**Jane L. Butt**, Ph.D., *Assistant Professor of Business Administration*; B.A. (University of Florida), M.S. (University of Central Florida), Ph.D. (University of Michigan).

Professor Butt teaches financial and managerial accounting. Her major research interests are in both the cognitive and incentive issues related to individual decision making, including auditing and managerial accounting applications. Her current research concerns frequency judgments in auditing.

**Kalman J. Cohen**, Ph.D., *Distinguished Bank Research Professor*; B.A. (Reed College), M.Litt. (Oxford University), M.S., Ph.D. (Carnegie-Mellon University).

Prior to joining the Duke faculty, Professor Cohen served for two years as Distinguished Professor of Finance and Economics and as the first Director of the Salomon Brothers Center for the Study of Financial Institutions at New York University. He also spent fourteen years on the faculty of Carnegie-Mellon University's Graduate School of Industrial Administration. He has written seven books and over eighty articles in the areas of banking and finance, strategic planning, economics, management science, and computer simulation. He has pioneered in the applications of management science techniques in banking. His current research focuses on the microstructure of security markets.

**Stephen N. Chapman**, Ph.D., *Visiting Assistant Professor of Business Administration*; B.A.Ed., M.A., M.B.A. (University of Michigan), Ph.D. (Michigan State University).

Professor Chapman is on leave from the University of Iowa where he teaches and does research in the areas of production/operations management and in manufacturing strategy. He has extensive industry experience

and continues to do consulting on production and manufacturing systems. His current research is focused in the area of Just-In-Time manufacturing implementation.

**Daniel W. Collins**, *Visiting Professor of Business Administration*; B.A., Ph.D. (University of Iowa).

Dan Collins is a chaired professor at the University of Iowa where he has taught since 1977. He has also served on the faculty of Michigan State University. Professor Collins' primary research focus is the capital market's interpretation of financial information, and he teaches in the general area of financial accounting. He has received several awards for teaching and scholarship during his distinguished academic career.

**Richard L. Daniels**, Ph.D., *Assistant Professor of Business Administration*; B.A. (Northwestern University), Ph.D. (University of California, Los Angeles).

Professor Daniels' research interests concern the multiattribute nature of common problems in production and operations management. His current research considers the effects of a range of sequencing and resource-allocation decisions on the performance of closed scheduling systems. His teaching interests include operations planning and control, job shop scheduling, and project management.

**Mark D. Dibner**, Ph.D., *Adjunct Assistant Professor*; B.A. (University of Pennsylvania); M.B.A. (Widener University); Ph.D. (Cornell University).

Professor Dibner received his B.A. in psychology and physiology and his Ph.D. in neurobiology and behavior. He is currently on the staff of the North Carolina Biotechnology Center and was formerly employed by E.I. du Pont de Nemours & Co. in neurobiology research. His primary research interest is the biotechnology industry, and he teaches in the area of management of technology.

**Robert L. Dickens**, M.S., CPA, *Professor of Accounting and Director of Undergraduate Studies*; B.S., M.S. (University of North Carolina).

Professor Dickens specializes in financial accounting and auditing. He has held offices in national organizations including Vice-President of the American Accounting Association and Chairman of the Committee on Education of the American Institute of Certified Public Accountants. He has served as consultant to the U.S. Office of Education and the U.S. Department of Agriculture on accounting and reporting matters. In 1966 he was awarded an honorary degree, LL.D., by Elon College.

**Julie A. Edell**, Ph.D., *Associate Professor of Business Administration*; B.A. (University of Nebraska), M.S., Ph.D. (Carnegie-Mellon University).

Professor Edell's teaching interests are in the area of marketing, with emphasis on advertising, marketing management, consumer behavior, and marketing research. Her current research is concerned with examining the effect of advertising communications upon consumer purchase behavior. Her work has appeared in the *Journal of Consumer Research*.

**Kathleen Englemann**, Ph.D., *Visiting Assistant Professor of Economics*; B.A. (Northwestern University); Ph.D. (University of California, Los Angeles).

Professor Englemann is a visiting professor of economics and finance. Her research interests include regulation, law and economics, and corporate finance, especially issues in corporate control. Her teaching interests include managerial economics, regulation, industrial organization, managerial finance, investments and corporate finance.

**Fred M. Feinberg**, Ph.D., *Assistant Professor of Business Administration*; S.B. (Philosophy), S.B. (Mathematics), Ph.D. (Massachusetts Institute of Technology).

Professor Feinberg's research interests lie in marketing, specifically in modeling advertising phenomena, game-type inter-firm competition, and consumer variety-seeking. His current research focuses on building managerially-implementable advertising models including competitive effects and empirically-observable spending patterns. His teaching interests include marketing models and statistics.

**John D. Forsyth**, D.B.A., *Professor of Business Administration*; B.A. (Queen's University), M.B.A. (University of Detroit), D.B.A. (University of Illinois).

Prior to coming to Duke, Professor Forsyth was Professor of Business Administration and Director of the Program for Executive Development at IMEDE Management Development Institute in Lausanne, Switzerland. His teaching and research interests are in the areas of international financial management, the planning and control of capital investments, and the design of corporate strategies.

**F. Douglas Foster**, Ph.D., *Assistant Professor of Business Administration*; B. Comm. (The University of Alberta), M.S., Ph.D. (Cornell University).

Professor Foster is interested in financial intermediation, capital market theory, and international finance. His current research is in investment banking, the microfoundations of short term trading, and proxy fights and corporate control. He teaches investments and international finance.

**Jennifer Francis**, Ph.D., *Assistant Professor of Business Administration*; B.S. (Bucknell University); M.S., Ph.D. (Cornell University)

Professor Francis's research and teaching interests are in the areas of financial and managerial accounting. Her current research focuses on corporate decision making, debt markets, financial distress models, and accounting for financial instruments.

**John P. Gallagher**, Ph.D., *Director of Computing*; B.A. (University of California, Berkeley), Ph.D. (University of California, Santa Barbara).

Professor Gallagher has extensive teaching experience in computer applications to education and problem solving. His research and teaching interests lie in the areas of computer application in support of managerial decision making, artificial intelligence and expert systems applications in management, and instructional psychology.

**Grant W. Gardner**, Ph.D., *Associate Professor of Business Administration*; B.S. (Southern Methodist University), A.M., Ph.D. (Harvard University).

Professor Gardner's primary areas of research are macroeconomics and international economics. His current research interest is central bank policy in an open economy. He teaches macroeconomics and international trade.

**E. Montgomery Graham**, Ph.D., *Visiting Associate Professor*; B.S. (Massachusetts Institute of Technology), M.B.A., Ph.D. (Harvard University).

Professor Graham teaches macroeconomics and international business. His research interests include the determinants of foreign direct investment and the dynamics of exchange rate movements. Prior to coming to the Fuqua School, he taught at the Sloan School of Management at M.I.T. and at U.N.C. Chapel Hill. He has also worked in the U.S. Treasury Department in Washington, D.C. and at the Organization for Economic Cooperation and Development (OECD) in Paris, France. During the summer of 1988 he was a visiting fellow at the Institute for International Economics in Washington, D.C.

**Christopher Gresov**, Ph.D., *Assistant Professor of Business Administration*; B.A. (Lawrence University), M.A. (Boston University) M.B.A., M.Phil., Ph.D. (Columbia University).

Professor Gresov teaches courses in the areas of organizational behavior, design, and entrepreneurship. Prior to doctoral study, Professor Gresov was an associate in the corporate finance department of the First Boston Corporation. His research interests include organization and work-unit design, the management of innovation and change, and new ventures. He has published articles in the *Columbia Journal of World Business*, *The Academy of Management Proceedings*, and *Organization Studies*.

**Campbell R. Harvey**, Ph.D., *Assistant Professor of Business Administration*; B.A. (University of Toronto), M.B.A. (York University, Toronto), Ph.D. (University of Chicago).

Professor Harvey's primary area of research is investments. His work focuses on asset pricing models that allow for expected returns and risks to change through time. His empirical work investigates the link between the business cycle and asset pricing via the consumption-based asset pricing model. He teaches financial management and investment analysis.

**Michael L. Hemler**, Ph.D., *Assistant Professor of Business Administration*; B.S. (University of Dayton), Ph.D. (Washington University), M.B.A., Ph.D. (University of Chicago).

Prior to joining the Fuqua School of Business, Professor Hemler taught at Washington University and at the University of Chicago. His research interests lie primarily in the areas of options and futures. Professor Hemler teaches courses in financial management and corporate finance.

**Joel C. Huber**, Ph.D., *Associate Professor of Business Administration*; B.A. (Princeton University), M.B.A., Ph.D. (University of Pennsylvania).

Professor Huber came to the Fuqua School from the Columbia University School of Business and the Krannert Graduate School of Management, Purdue University. His teaching interests are in the areas of marketing and market research. He is a member of the American Marketing Association, the Association for Consumer Research, and the Psychometric Society.

**Toby Y. Kahr**, Ph.D., *Adjunct Associate Professor*; B.S. (Columbia University), M.A., Ph.D. (University of Illinois).

Professor Kahr is Assistant Vice-President and Director of Duke University Human Resources. Before coming to Duke he served as Director of Personnel Services at the University of Illinois and worked for Ford Motor Company in personnel administration. Professor Kahr teaches courses in human resources management and industrial relations.

**Thomas F. Keller**, Ph.D., CPA, *R. J. Reynolds Professor of Business Administration and Dean*; A.B. (Duke University), M.B.A., Ph.D. (University of Michigan).

Professor Keller specializes in accounting. His current research and teaching interests are principally in the areas of financial accounting and reporting. He has held several offices in the American Accounting Association, including Editor of the *Accounting Review* (1972-75). He is the coauthor and coeditor of several books in financial accounting. During the summer and fall of 1975 under the auspices of a Fulbright grant, he lectured in Australia and the Far East on a variety of topics related to the development of accounting theory and standards. He is currently a Director of Hatteras Income Securities, Inc., LADD Furniture, Inc., Pennwalt Corporation, and Southeastern Growth Fund, Inc.

**Amna Kirmani**, Ph.D., *Assistant Professor of Business Administration*; B.A. (University of Maryland), M.B.A. (Cornell University), Ph.D. (Stanford University).

Professor Kirmani's teaching interests are in the areas of advertising management and consumer behavior. Her current research interests include the effect of advertising on consumers' perceptions of product quality and on the framing of buying decisions.



**Naoki Kishimoto, Ph.D.,** *Assistant Professor of Business Administration*; B.A. (University of Tokyo), Ph.D. (New York University).

Professor Kishimoto's teaching interests include investments, the theory of capital markets, and corporate finance. His research interests lie in the areas of options, futures, and fixed-income securities. His current research is concerned with the pricing of multi-factor contingent claims under interest rate risk.

**Dan J. Laughhunn, D.B.A.,** *Professor of Business Administration*. B.S. (Engineering Mechanics), M.B.A., D.B.A. (University of Illinois).

Professor Laughhunn has served as a consultant to industry and universities on a variety of topics related to planning and budgeting. His teaching and research interests deal with the application of quantitative techniques to problems in production and finance. Professor Laughhunn also has been actively engaged in teaching executive development programs, both at Duke and at other universities.

**Arie Y. Lewin, Ph.D.,** *Professor of Business Administration*; B.S., M.S. (University of California, Los Angeles), M.S., Ph.D. (Carnegie-Mellon University).

Prior to coming to Duke, Professor Lewin was on the faculty of New York University for eight years. His research interests have been focused on applications of behavioral science to specific functional areas, organization design, person perception, and business participation in the formulation of public policy. Current research involves new approaches to measuring the effectiveness and efficiency of organizations and organization redesign, state owned enterprises in international trade, and the social, legal, and political environment of business. Professor Lewin is the coauthor of three books and his papers have appeared in numerous academic journals. Professor Lewin is the Organization Design Department Editor of *Management Science*.

**Frederick W. Lindahl, Assistant Professor of Business Administration**; B.S. (United States Air Force Academy), M.B.A. (Harvard University), Ph.D. (University of Chicago).

Professor Lindahl spent several years in public accounting prior to joining Duke. Financial accounting is his primary research interest, his current research being an empirical probability model of selection of accounting principles.

**John M. McCann, Ph.D.,** *Associate Professor of Business Administration*; B.S.M.E., M.B.A. (University of Kentucky), Ph.D. (Krannert Graduate School of Industrial Administration, Purdue University).

Professor McCann served on the faculty of the Graduate School of Business and Public Administration at Cornell and has been a consultant with an economic modeling and research firm. He is Director of the Marketing Workbench Laboratory at the Fuqua School. His teaching interests are in the areas of marketing and econometrics and information systems. His current research involves the interface between marketing management and computerized management information systems.

**Kevin F. McCardle, Ph.D.,** *Assistant Professor of Business Administration*; B.S. (Marquette University), M.A., Ph.D. (University of California, Los Angeles).

Professor McCardle's teaching interests lie in the area of probability and statistics, linear and dynamic programming, game theory, operations research and sequential analysis. His research involves sequential decision theory, applications of game theory, models of R&D, and corporate strategy.

**Wesley A. Magat, Ph.D.,** *Professor of Business Administration and Director of the Center for the Study of Business Regulation*; A.B. (Brown University), M.S., Ph.D. (Northwestern University).

Professor Magat teaches primarily in the fields of managerial economics and regulatory management. He is currently involved in research in the areas of toxic chemicals regulation, administrative procedures and reform, and enforcement of environmental regulations. He is the author or coauthor of three books, and his papers have appeared in numerous academic journals.

**Steven F. Maier, Ph.D.,** *Adjunct Professor of Business Administration*; B.S. (Cornell University), M.S., Ph.D. (Stanford University).

Professor Maier is President and CEO of UAI Technology, Inc. and its University Analytics division. The company is based in the Research Triangle Park, N.C., and serves 200 banks and public utilities with its data products and computer models. His research interests are in cash management and the microstructure of security markets. He is the author or coauthor of over forty journal articles and two books. He has also been active in Duke's executive development programs.

**Joseph B. Mazzola, Ph.D.,** *Associate Professor of Business Administration*; B.S. (State University of New York at Stony Brook); M.A. (Wake Forest University); M.S., Ph.D. (Carnegie-Mellon University).

Professor Mazzola's teaching and research interests are in the areas of production/operations management, management science, and operations research. His current research involves topics arising in operations scheduling, production and inventory control, and mathematical programming. Prior to coming to Duke, Professor Mazzola served on the faculty of the University of North Carolina at Chapel Hill.

**John Minton, Ph.D.,** *Visiting Assistant Professor*; B.A., M.A. (University of Northern Colorado); M.S. (Management), M.B.A. (Memphis State University); Ph.D. (Duke University).

Professor Minton's primary teaching areas are organizational behavior, human resources, and conflict management. His research includes activities in the areas of organizational justice, effectiveness and governance as well as conflict management and international joint ventures. He has published in *Management Science* and

the *Journal of Personality and Social Psychology* and consulted in the areas of conflict, negotiation, and personnel administration. Prior to coming to Duke he taught at Appalachian State University and held a range of positions in local government planning and management.

**Michael J. Moore**, Ph.D., *Assistant Professor of Business Administration*; B.S. (Boston College), M.B.A. (Babson College), M.S., Ph.D. (University of Michigan).

Professor Moore's research interests are primarily in the areas of occupational safety and workers' compensation insurance. He also does research in marketing on the determinants of profitability and of industry structure. His teaching interests are in applied microeconomics, labor economics, and macroeconomics.

**Robert Nau**, Ph.D., *Assistant Professor of Business Administration*; B.A. (University of California at San Diego), M.S., Ph.D. (University of California at Berkeley).

Professor Nau's research interests include the mathematical modeling of choice under uncertainty, computer-aided decision analysis, and time series forecasting. Prior to coming to the Fuqua School, Professor Nau taught at Tulane University and served as manager of information systems at Liberty Mutual Insurance Company. He has taught courses in management science, computers and information systems, and statistical forecasting.

**John W. Payne**, Ph.D., *Professor of Business Administration, Area Coordinator for Organizational Behavior and Director of the Center for Decision Studies*; B.A., M.A., Ph.D. (University of California, Irvine).

Prior to coming to Duke, Professor Payne was on the faculty of the Graduate School of Business at the University of Chicago. His primary research activities deal with individual decision behavior. He has investigated decision making under risk, consumer choice behavior, and the design of computer-based support systems. He teaches courses in decision theory, organizational behavior, and consumer behavior.

**David W. Peterson**, Ph.D., *Adjunct Professor of Business Administration*; B.A. (University of Wisconsin), M.S., Ph.D. (Stanford University).

Professor Peterson's teaching and research activities are in the fields of mathematical modeling, statistical analysis, and operations research. His recent publications have dealt with control theory, portfolio selection, long- and short-range planning, and regulated utilities. He is a consultant to corporate and governmental litigation teams on matters pertaining to the structuring of statistically based legal positions.

**Donna Rae Philbrick**, Ph.D., *Assistant Professor of Business Administration*; B.S. (University of Oregon), M.B.A., Ph.D. (Cornell University).

Professor Philbrick is interested in effects of accounting information on the financial markets. She has published in the *Journal of Accounting Research*. Her teaching interests center on financial accounting at the elementary as well as the intermediate and advanced levels. Professor Philbrick taught at the University of Oregon before joining the Fuqua School faculty.

**Devavrat Purohit**, Ph.D., *Assistant Professor of Business Administration*; B.A. (Muskingum College), M.B.A., Ph.D. (Carnegie-Mellon University).

Professor Purohit's teaching interests are marketing management, product and pricing management, and marketing research. His research interests are new product development and obsolescence, pricing, consumer perceptions of product changes, and trade-in and rebate policies.

**Robert E. Reinheimer** Ph.D., *Associate Professor of the Practice of Management Communication*; B.A., M.A. (California State University, Fullerton), Ph.D. (University of Kansas).

Professor Reinheimer came to the Fuqua School from the University of Virginia. His primary areas of interest are in speech communication and small group communication. He has taught a number of courses and executive development programs in these areas, and is responsible for the Management Communication courses in the M.B.A. and Executive M.B.A. programs.

**William E. Ricks**, Ph.D., CPA, *Associate Professor of Business Administration*; B.S. (University of New Orleans), Ph.D. (University of California, Berkeley).

Professor Ricks has had extensive teaching experience in both managerial and financial accounting in the M.B.A. program at the University of California at Berkeley. He holds a CPA certificate in Louisiana and has wide audit experience in oil, gas, and banking. His major research interest is financial accounting at both the individual and market level. His published research focuses on the stock market's reaction to accounting information.

**Elaine Romanelli**, Ph.D., *Assistant Professor of Business Administration and Director of the Center for Entrepreneurial Studies*; A.B. (University of California, Berkeley); M.B.A., Ph.D. (Columbia University).

Professor Romanelli teaches in the areas of organization behavior and new venture management. Her research interests include the strategies and processes of organization creation, and patterns of evolution for both new and large firms. She has published in *Management Science* and *Research in Organizational Behavior*.

**Jeffrey L. Rummel**, Ph.D., *Assistant Professor of Business Administration*; B.A. (Capital University), M.S., Ph.D. (University of Rochester).

Professor Rummel's teaching and research interests are in the areas of manufacturing and operations management, management science, and mathematical programming. His dissertation is titled, "Costs and Performance Measurement in Batch Manufacturing," and his other current research concerns automated scheduling and lot sizing systems.

**Rakesh K. Sarin**, Ph.D., *Professor of Business Administration*; B.E., (M.R. Engineering College); M.B.A. (Indian Institute of Management); M.S., Ph.D. (University of California, Los Angeles).

Professor Sarin's research interests are in decision theory and production and operations management. He is coauthor of *Modern Production/Operations Management*, has published extensively in academic journals, and has been awarded grants by NSF and ONR. He formerly taught at the Indian Institute of Management, Purdue University, and the University of California, Los Angeles.

**James E. Sheldon**, L.L.M. *Adjunct Assistant Professor of Business Administration*; B.A. (Dartmouth College), J.D. (University of California), L.L.M. (Boston University Law School), L.L.M. (University of Stockholm).

Before joining the Fuqua School of Business, Mr. Sheldon practiced corporate, securities, and tax law for seven years in Boston and San Francisco. His teaching and research interests include business and tax planning. He is a member of the California, Massachusetts, and North Carolina Bar Associations.

**Blair H. Sheppard**, Ph.D., *Associate Professor of Business Administration and Director of the Center for Human Resource Management*; B.A., M.A. (University of Western Ontario), Ph.D. (University of Illinois).

Professor Sheppard joined the Fuqua School of Business from the faculty of Management at McGill University. He teaches in organization behavior, personnel management, and industrial relations. His research interests include conflict resolution and group effectiveness. He has published in the *Journal of Personality and Social Psychology*, *Research in Organizational Behavior*, and *Journal of Applied Social Psychology*. His consulting has been in the area of human resource management.

**Tom Smith**, Ph.D., *Assistant Professor of Business Administration*; B.Comm., M.F.M. (University of Queensland), Ph.D. (Stanford University).

Professor Smith teaches courses in financial management and empirical methodology in finance. Before coming to the Fuqua School he taught at Brisbane College of Advanced Education in Australia. His current research interests focus on using econometrics to study the distributional properties of security prices.

**Richard Staelin**, Ph.D., *Edward and Rose Donnell Professor of Business Administration and Associate Dean for Faculty Affairs*; B.S., M.B.A., Ph.D. (University of Michigan).

Prior to joining Duke's faculty, Professor Staelin served as Professor and Associate Dean at the Graduate School of Industrial Administration, Carnegie-Mellon University. He was also a Visiting Professor at the Australian Graduate School of Management and at the University of Chicago. His professional activities include consulting work for both the public and private sectors, active participation in professional associations, service on editorial boards of four academic journals, and publication of a book and over forty journal articles. He is presently Area Editor of *Marketing Science*. Professor Staelin's current research interests include information search and channel management.

**Jens A. Stephan**, Ph.D., *Assistant Professor of Business Administration*; B.S.M.E. (University of Michigan), M.B.A. (Pennsylvania State University), Ph.D. (Cornell University).

Professor Stephan's teaching interests are in managerial and financial accounting. He has done research on the ability to measure the impact of firm-specific events on security prices, and his current research investigates the role of prices as a source of information for security market traders.

**James H. Vander Weide**, Ph.D., *Research Professor of Business Administration*; B.S. (Cornell University), Ph.D. (Northwestern University).

Professor Vander Weide's primary research and teaching interests are in the areas of corporate finance and managerial economics. He has written papers on topics such as cash management, capital budgeting, portfolio analysis, and the economic effects of government regulation. He has also served as a consultant to banks in the area of cash management. He has testified as an expert witness on the cost of capital before the Public Utility Commission of several states.

**S. Viswanathan**, Ph.D., *Assistant Professor of Business Administration*; B.S. (University of Bombay), Ph.D. (Northwestern University).

Professor Viswanathan teaches corporate finance. His major research interests are corporate finance, market microstructure and information economics. His prior research has focused on how financial decisions are used to signal managerial information about firm's future prospects. Currently, he is working on why volumes, bid-ask spreads and returns on the stock exchange fluctuate systematically through the week.

**Wanda T. Wallace**, Ph.D., *Visiting Assistant Professor*, B.A., M.A., Ph.D. (Duke University).

Professor Wallace has been a research associate in Duke's Department of Psychology since 1985, and a visiting assistant professor at the University of North Carolina at Chapel Hill. Her current research concerns theoretical interpretations of memory systems that can account for information recall and advertising memory cues. She teaches marketing management.

**Robert E. Whaley**, Ph.D., *Associate Professor of Business Administration, Co-Director of the Futures and Options Research Center and Area Coordinator for Finance and Economics*; B. Comm. (University of Alberta), M.B.A., Ph.D. (University of Toronto).

Prior to joining the Fuqua School of Business faculty, Professor Whaley taught at Vanderbilt University, the University of Alberta, and the University of Chicago. He also served as Vice-President-Research with GNP Consulting in Chicago and as Director of the Institute for Financial Research at the University of Alberta. Professor

Whaley's research interests are currently in the area of financial futures and options. He has published studies in the major finance journals and is coeditor of the *Review of Futures Markets*.

**Andrew B. Widmark, J.D.**, *Professor of the Practice of Real Estate*; B.S. (Fairleigh Dickinson University), M.B.A. (University of Pennsylvania), J.D. (Rutgers University).

Mr. Widmark is president and chief executive officer of Galesi Realty Corporation in Wayne, New Jersey, which owns and manages shopping centers and office buildings. He practices tax, real estate and business law, and has taught real estate courses at the Rutgers University School of Law.

**Robert L. Winkler, Ph.D.**, *Calvin Bryce Hoover Professor of Business Administration and Area Coordinator for Quantitative Methods and Operations Management*; B.S. (University of Illinois), Ph.D. (University of Chicago).

Prior to joining the Duke faculty, Professor Winkler served as Distinguished Professor of Quantitative Business Analysis at Indiana University, and he has held visiting positions at the University of Washington, the International Institute for Applied Systems Analysis, Stanford University, and INSEAD. His primary research interests involve Bayesian statistics, decision analysis, risk assessment, and probability forecasting. Professor Winkler is the author of numerous research articles and books, is Departmental Editor for Decision Analysis for *Management Science*, and serves on the editorial boards of several other journals.

**William L. Yaeger, J.D.**, *Adjunct Associate Professor of Business Administration*; B.A. (Duke University), J.D. (Emory University).

Mr. Yaeger teaches the course Legal Environment of the Firm in the M.B.A. programs. He is in private practice in Durham, North Carolina, with an emphasis on bankruptcy and insolvency. Mr. Yaeger is a member of the North Carolina Bar Association and the National Association of Bankruptcy Trustees.

**Valarie A. Zeithaml, D.B.A.**, *Associate Professor of Business Administration*; B.A. (Gettysburg College); M.B.A., D.B.A. (University of Maryland).

Professor Zeithaml teaches marketing strategy and the marketing of services. From 1980-86 she was on the faculty at Texas A&M University. Her research has focused on consumer evaluation of services, consumer perceptions of price, and service/product quality. She has published numerous articles in academic journals, serves as a member of the editorial review board of *The Journal of Marketing*, and is editor of *The Review of Marketing*.









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EDITOR  
Judy Smith  
SENIOR EDITORIAL ASSISTANT  
Elizabeth Matheson  
BULLETIN COORDINATOR  
Nell F. Andrews

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PHOTOGRAPHS  
Jimmy Wallace  
Ronald Ferrell  
*Duke Dialogue*

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Steve Dunwell

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Duke University does not discriminate on the basis of race, color, national and ethnic origin, sex, handicap, or age in the administration of educational policies, admission policies, financial aid, employment, or any other University program or activity. It admits qualified students to all the rights, privileges, programs, and activities generally accorded or made available to students. For further information, call Dolores L. Burke, Equal Opportunity Officer, (919) 684-8111. Duke University has adopted procedures for investigation and remedy of complaints involving discrimination. See the chapter "Campus Life and Activities."

The information in the bulletin applies to the academic year 1989-90 and is accurate and current, to the best of our knowledge, as of February, 1989. The University reserves the right to change programs of study, academic requirements, lecturers, teaching staffs, the announced University calendar, and other matters described in the bulletin without prior notice, in accordance with established procedures.

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# School of Medicine Calendar 1989-90

## First Year (Freshmen) Students

1989

<b>August</b>		
7	Monday, 8:30 A.M.—Orientation	
14	Monday, 8:00 A.M. First day of academic year, 1989-90, begin fall term	
<b>September</b>		
4	Monday—Labor Day holiday	
<b>November</b>		
21	Tuesday, 12:00 noon—Begin Thanksgiving holiday	
27	Monday, 8:00 A.M.—Classes resume	
<b>December</b>		
15	Friday, 6:00 P.M.—End fall term	

1990

<b>January</b>		
8	Monday, 8:00 A.M.—Begin spring term	
<b>March</b>		
9	Friday, 6:00 P.M.—Begin spring vacation	
19	Monday, 8:00 A.M.—Classes resume	
<b>June</b>		
22	Friday, 12:00 noon—End spring term	

## Second Year (Sophomore) Students Introduction to Physical Diagnosis 1989

<b>July</b>		
17	Monday, 8:00 A.M.—Begin classes	
<b>September</b>		
1	Friday, 12:00 noon—End classes	

### Fall Term 1989

<b>September</b>		
5	Tuesday—Begin classes in sections 41 and 81	
27	Wednesday, 6:00 P.M.—End classes in section 41	
<b>October</b>		
2	Monday, 8:00 A.M.—Begin classes in section 42	
25	Wednesday, 6:00 P.M.—End classes in sections 42 and 81	
30	Monday, 8:00 A.M.—Begin classes in sections 43 and 82	
<b>November</b>		
22	Wednesday, 6:00 P.M.—End classes in section 43. Begin Thanksgiving holiday	
27	Monday, 8:00 A.M.—Begin classes in section 44	
<b>December</b>		
20	Wednesday, 6:00 P.M.—End classes in sections 44 and 82	

### Spring Term 1990

<b>January</b>		
8	Monday, 8:00 A.M.—Begin classes in sections 41 and 81	
31	Wednesday, 6:00 P.M.—End classes in section 41	
<b>February</b>		
5	Monday 8:00 A.M.—Begin classes in section 42	
28	Wednesday, 6:00 P.M.—End classes in sections 42 and 81	

**March**  
 5 Monday, 8:00 A.M.—Begin classes in sections 43 and 82  
 28 Wednesday, 6:00 P.M.—End classes in section 43

**April**  
 2 Monday, 8:00 A.M.—Begin classes in section 44  
 25 Wednesday, 6:00 P.M.—End classes in sections 44 and 82. Begin spring vacation

**Summer Term 1990**

**May**  
 7 Monday 8:00 A.M.—Begin classes in sections 41 and 81  
 30 Wednesday, 6:00 P.M.—End classes in section 41

**June**  
 4 Monday, 8:00 A.M.—Begin classes in section 42  
 27 Wednesday, 6:00 P.M.—End classes in sections 42 and 81

**July**  
 2 Monday, 8:00 A.M.—Begin classes in sections 43 and 82  
 4 Wednesday—Independence Day holiday  
 25 Wednesday, 6:00 P.M.—End classes in section 43  
 30 Monday, 8:00 A.M.—Begin classes in section 44

**August**  
 22 Wednesday, 6:00 P.M.—End classes in sections 44 and 82

**Third Year (Junior) and Fourth Year (Senior) Students**

**Summer Term 1989**

**May**  
 15 Monday, 8:00 A.M.—Begin classes in sections 16, 81, 41

**June**  
 10 Saturday, 12:00 noon—End classes in section 41  
 12 Monday, 8:00 A.M.—Begin classes in section 42

**July**  
 4 Tuesday—Independence Day holiday  
 8 Saturday, 12:00 noon—End classes in sections 81, 42  
 10 Monday, 8:00 A.M.—Begin classes in sections 82, 43

**August**  
 5 Saturday, 12:00 noon—End classes in section 43  
 7 Monday, 8:00 A.M.—Begin classes in section 44

**September**  
 2 Saturday, 12:00 noon—End classes in sections 16, 82, 44

**Fall Term 1989**

**September**  
 5 Tuesday, 8:00 A.M.—Begin classes in sections 16, 81, 41  
 30 Saturday, 12:00 noon—End classes in section 41

**October**  
 2 Monday, 8:00 A.M.—Begin classes in section 42  
 28 Saturday, 12:00 noon—End classes in sections 81, 42  
 30 Monday, 8:00 A.M.—Begin classes in sections 82, 43

**November**  
 1 Wednesday—Registration for spring term 1990  
 22 Wednesday 12:00 noon—End classes in section 43. Begin Thanksgiving holiday  
 27 Monday, 8:00 A.M.—Begin classes in section 44

**December**  
 23 Saturday, 12:00 noon—End classes in sections 16, 82, 44

## Spring Term 1990

<b>January</b>	
15	Monday, 8:00 A.M.—Begin classes in sections 16, 81, 41
<b>February</b>	
10	Saturday, 12:00 noon—End classes in section 41
12	Monday, 8:00 A.M.—Begin classes in section 42
<b>March</b>	
10	Saturday, 12:00 noon—End classes in sections 81, 42. Begin spring vacation
19	Monday, 8:00 A.M.—Classes resume. Begin classes in sections 82, 43
21	Wednesday—Registration for summer term 1990
<b>April</b>	
14	Saturday, 12:00 noon—End classes in section 43
16	Monday, 8:00 A.M.—Begin classes in section 44
18	Wednesday—Registration for fall term 1990—fourth year students
<b>May</b>	
12	Saturday, 12:00 noon—End classes in sections 16, 82, 44
12-13	Saturday-Sunday—Graduation activities
30	Wednesday—Registration for fall term 1990—third year students

## Summer Term 1990

<b>May</b>	
14	Monday, 8:00 A.M.—Begin classes in sections 16, 81, 41
<b>June</b>	
9	Saturday, 12:00 noon—End classes in section 41
11	Monday, 8:00 A.M.—Begin classes in section 42
<b>July</b>	
4	Wednesday—Independence Day holiday
7	Saturday, 12:00 noon—End classes in sections 81, 42
9	Monday, 8:00 A.M.—Begin classes in sections 82, 43
<b>August</b>	
4	Saturday, 12:00 noon—End classes in section 43
6	Monday, 8:00 A.M.—Begin classes in section 44
<b>September</b>	
1	Saturday, 12:00 noon—End classes in sections 16, 82, 44





# University Administration

## General Administration

H. Keith H. Brodie, M.D., LL.D., *President*  
Phillip A. Griffiths, Ph.D., *Provost*  
Ralph Snyderman, M.D., *Chancellor for Health Affairs and Dean of the School of Medicine*  
William G. Anlyan, M.D., D.Sc., *Chancellor*  
Eugene J. McDonald, LL.M., *Executive Vice-President*  
Joel L. Fleishman, LL.M., *Vice-President*  
J. Peyton Fuller, A. B., *Vice-President, Planning and Treasurer*  
William J. Griffith, A. B., *Vice-President for Student Affairs*  
John J. Piva, Jr., B.A., *Vice-President for Alumni Affairs and Development*  
Patricia C. Skarulis, M.A., *Vice-President for Information Systems*  
Andrew G. Wallace, M.D., *Vice-President for Health Affairs*  
John F. Adcock, M.B.A., *Vice-President and Corporate Controller*  
Tom A. Butters, B.A., *Vice-President and Director of Athletics*  
N. Allison Haltom, A. B., *Secretary of the University*

## Medical Center Administration

### Office of Chancellor for Health Affairs

Ralph Snyderman, M.D., *Chancellor for Health Affairs and Dean of the School of Medicine*  
Andrew G. Wallace, M.D., *Vice-President for Health Affairs*  
Doyle G. Graham, M.D., Ph.D., *Dean, Medical Education*  
Robert G. Winfree, M.A., *Associate Vice-President for Health Affairs*  
Jane G. Elchlepp, M.D., Ph.D., *Assistant to the Chancellor for Health Affairs*  
James L. Bennett, Jr., A. B., *Director of Administration*  
Bernard McGinty, B.A., *Director of Budget and Finance*  
Raymond C. Waters, M.A., *Associate Vice-President for Health Affairs, Development, and Alumni*  
Larry D. Nelson, B.S., *Assistant Vice-President for Health Affairs, Planning and University Architect*  
L. T. Matthews, B.A., *Director of Engineering and Operations*  
William W. Stead, M.D., *Director of Medical Center Information Systems*

### Office of Medical and Allied Health Education

Doyle G. Graham, M.D., Ph.D., *Dean, Medical Education*  
Katharine Munning, Ph.D., *Associate University Registrar and Associate Dean, Medical Education*  
Lois A. Pounds, M.D., *Associate Dean, Medical Education-Admissions*  
Saul M. Schanberg, M.D., Ph.D., *Associate Dean, Medical Education-Curriculum*  
Daniel T. Gianturco, M.D., *Associate Dean, Medical Education*  
Thomas R. Kinney, M.D., *Associate Dean, Medical Education*  
Deborah W. Kredich, M.D., *Associate Dean, Medical Education*  
Andrew C. Puckett, Jr., Ph.D. *Associate Dean, Medical Education*  
Roy T. Parker, M.D., *Director, Continuing Medical Education*  
G. Ralph Corey, M.D., *Director, Graduate Medical Education*

### Office of Duke University Hospitals

Andrew G. Wallace, M.D., *Vice-President for Health Affairs*  
William J. Donelan, M.S.M., *Director and Chief Operating Officer*  
Duncan Yaggy, Ph.D., *Director and Chief Planning Officer*  
John Robinette, M.H.A., *Director, Patient Services Division*  
Robert F. O'Connell, B.S., *Director, General Services Division*  
Roger Akers, B.S., *Controller, Duke Hospital*  
Delford L. Stickel, M.D.S., *Associate Director, Medical Affairs*  
Ralph Corey, M.D., *Associate Director, Graduate Medical Training*  
Catherine G. Neyland, M.H.A., *Executive Assistant to the Vice-President for Health Affairs*

### Office of the School of Nursing

Dorothy J. Brundage, Ph.D., R.N. *Interim Dean*  
Linda Fann, *Executive Assistant*

# Standing Committees of the School of Medicine and Medical Center

## Admissions Medical School

Lois A. Pounds, M.D., *Chairman*; Drs. Akwari, N. C. Anderson, W. B. Anderson, Counce, Dawson, Frey, Hage, Kenan, Kuhn, Lumb, Mitchell, Murray, Polisson, Rajagopalan, Rourk, Sanfilippo, Shields, D. Sullivan, R. Sullivan, Jr., Ward, and Young; *Administrative Assistant*: Ms. Franklin; *Student Representatives*: Ms. Hawkins; Messrs. Bass and Bryant

## Animal Care and Use

F. Stephen Vogel, M.D., *Chairman*; Drs. Abou-Donia, Bissette, Corley, Kaufman, W. Murray, Proia, Rahija, Richter, Schold, Steenburger, Tyrey, Walther, and Weiss; Mr. Rodio

## Audit and Tissue

Clinical Chairman of each clinical service and head of each division in service

## Brain Death

Allen D. Roses, M.D., *Chairman*; Neurology—Drs. Alberts, Albright, Bowman, Bragdon, Clark, Davis, DeLong, Earl, Erwin, Goldstein, Heyman, Hosford, Hurwitz, Kandt, Lewis, McNamara, E. W. Massey, J. Massey, Radtke, Rozeat, Sanders, Schmechel, Schold, Shin, Siddique, Stewart, Tourian, and Walczak; Neurosurgery—Drs. Cook, Friedman, Kramer, Nashold, Oakes and Wilkins

## Clinical Cancer Education Program

John M. Falletta, M.D., *Chairman and Director*; Drs. Bast and Halperin

## Clinical Investigations

Jerome Harris, M.D., *Chairman*; Joseph C. Farmer, Jr., M.D., *Vice-Chairman*; Barbara Echols, *Cochairperson*; Drs. Back, Borowitz, Carroll, Cobb, Jones, Kay, Lakin, McIntyre, Proia, Rhoads, Semans; Chaplain Travis; Ms. Lipscomb, McIntire, Perry, Sigman, Stewart, Wilkins; *Alternates*: Drs. Dutton, Falletta, Fox, Ideker, Killam, Killenberg, Mahorney, Myers, Schold, Sostman; Chaplain Franzen; Ms. Long, Mr. Lee; *Student Representatives*: Messrs. Avva and Tsai

## Continuing Medical Education

Roy T. Parker, M.D., *Chairman*; Cynthia C. Easterling, *Coordinator*; Drs. Bennett, Cooper, Gallis, Hall, Kandt, Kenan, Munning, and Shields

## Curriculum

*Steering Committee*: Saul M. Schanberg, M.D., Ph.D., *Chairman*; Thomas R. Kinney, M.D., and Katharine Munning, Ph.D., *Co-chairmen*; Drs. Akwari, Filston, Grossman, Padilla, and Pizzo; Mr. Didriksen, Ms. Nash; *Student Representatives*: Mr. Evans, Ms. Hook

*Long-Range Planning*: Salvatore Pizzo, M.D., Ph.D., *Chairman*; Howard Filston, M.D., *Vice-Chairman*; Drs. Cartmill, H. Cohen, Dawson, Effman, Ellinwood, Gallis, Hage, Handwerger, Michener, Padilla, Siegel, Waugh, and Yaggy; *Student Representatives*: Messrs. Bass and Evans, Ms. Hook

*Current Policy*: George M. Padilla, Ph.D., *Chairman*; Drs. Burger, Christakos, Cresswell, J. Davis, Hatchell, Hine, Kootsey, Ottolenghi, Squire, Steege, Vogel, Wagner, W. Wilkinson, H. Willett; *Student Representatives*: Messrs. Oetting and Simons

## Dean's Committee on Minority Affairs

Brenda E. Armstrong, M.D., *Chairman*; Drs. Phillips, Falletta, Sanfilippo, J. Carter, Putman, Harrell; Ms. J. Evans and Foster

## Duke Comprehensive Cancer Center Clinical Cancer Committee

Robert C. Bast, Jr., M.D., *Chairman*; Drs. Bossen, Clarke-Pearson, Clippinger, Falletta, Paulson, Prosnitz, Rosse, Schold, and Seigler; Ms. Mueller, Robertson, Woods, and Howard; Mr. Donelan; Dr. Bell, *ex officio*



### **Emergency Department Advisory**

Harold R. Silberman, M.D. and Delford L. Stickel, M.D., *Cochairmen*; Drs. Addison, Eisenson, Jackson, Maus, Moylan, Nunnley, Rose, Tiedeman, Vandemark, and Wong; Ms. Calhoun, Ford, Groves, Riddle, Wallace, and Weber; Messrs. Goodfellow, Hawkins, Richards, Toffaletti, Wallace, C., and Wallace, R.

### **Financial Aid**

Ms. Nell Andrews, *Administrator*; Drs. Johnston, Pounds and Graham; Ms. Franklin; Mr. McGinty; Two student representatives

### **Hospital Advisory**

Andrew G. Wallace, M.D., *Chairman*; Drs. Anlyan, Carroll, Greenfield, Hammond, Jennings, Katz, Machemer, Parkerson, Ravin, Sabiston, Stickel, Watkins, and Yaggy; Ms. Peter; Messrs. Akers, Berry, Donelan, Mau, McMahan, and Robinette

### **Hospital Infections**

Suydam Osterhout, M.D., Ph.D., *Chairman*; Drs. Bartlett, Durack, Eisenson, Gubert, Hamilton, Hunt, Ig-lehart, Jackson, Klein, Livengood, Rudd, Thomann, Weitand Wilfert, and Wilson; Ms. Avery, Burgess, Palmer, Robins, and Weddle; Messrs. McAllister, Leikweg, and Richards

### **Hospital Transfusion Committee**

John M. Falletta, M.D., *Chairman*; Drs. Addison, Bredehoeft, Cooper, Hall, Kinney, Kopeke, Murray, Osterhout, Rosse, Schneider, Telen, and Young; Ms. Bedell, Bolk, Rodio, and Vesilind; Messrs. Barbieri, Bennett, and Stinson

### **Library**

Mr. Warren Bird, *Chairman*; Dr. Graham; Messrs. Winfree and McGinty

### **Medical Center Information Systems Advisory Committee**

William W. Stead, M.D., *Chairman*; Drs. Carter, Elchlepp, E. Hammond, Kootsey, and Peter Smith; Mr. Bird

### **Medical Center Radiation Control and Radioactive Drug Research Committee**

Kenneth W. Lyles, M.D., *Chairman*; Drs. Briner, Grant, Harris, Matthews, O'Foghluha, Sullivan, and Wolbarsht and Mr. Knight

### **Medical Center Safety**

Wayne R. Thomann, Ph.D. *Chairman*; Drs. Bradford, Burdette, Harris, Jackson, Keene, Suydam Osterhout; Messrs. Blake, Bowman, Hilliard, Knight, Leathers, J. Moore, Rodio, Stinson; Ms. Brady and Burgess

### **Medical Records**

George J. Ellis III, M.D., *Chairman*; Drs. Gerber, Piscitelli, Stickel and Wang; Ms. Hale, Mears, Woodlief, Worsley, and Yarberry; Messrs. Eubanks, Hunt, Kulik, Moore and Stinson

### **Medical Center Policy Advisory Committee**

William G. Anlyan, M.D., *Chairman*; Drs. Carroll, Graham, Greenfield, Hammond, Hill, Jennings, T. Johnson, Joklik, Katz, Kirshner, Machemer, Parkerson, Ravin, Robertson, Sabiston, Wallace, and Watkins; Mr. Bennett

### **Medical Student Research Scholarship**

Galen S. Wagner, M.D., *Chairman*; Drs. Anderson, Bastia, Granger, Kaufman, Kredich, Lieberman, Lowe, Mills, Pizzo, Reedy, Strauss, and Williams

### **Merit Scholarship**

Doyle G. Graham, M.D., Ph.D., *Chairman*; Drs. Bollinger, N. Kredich, G. Phillips, Pounds, Slotkin, and Joanne Wilson; Administrative Assistant: Ms. Franklin; Two Student Representatives

### **North Carolina Residence**

Lois A. Pounds, M.D., *Chairman*; Drs. Clapp, Munning, and Peete

## **Operating Room Advisory**

David C. Sabiston, Jr., M.D., *Cochairman*; W. David Watkins, M.D., *Cochairman*; Drs. Bloch, Bollinger, Camporesi, Filston, Hammond, Hudson, Kalayjian, Karis, Maroof, Meyer, Moylan, Oldham, Paulson, Reves, Serafin, Urbaniak, and Wilkins; Ms. Owins, Roberts, and Wicker; Mr. Brown

## **Pharmacy and Therapeutics**

Philip D. Lumb, M.D., *Chairman*; Drs. Blum, Cobo, Gianturco, Killam, Kurtzberg, Leight, Perfect, Rudd, and Willett; Ms. Miller; Messrs. Dedrick, McAllister and Robinette; *Chief Resident in the Department of Medicine*

## **Research Award**

F. Stephen Vogel, M.D., *Chairman*; Drs. Fridovich, George, Metzgar, Pizzo, Schanberg, Semans, and Spach

## **Study Away Committee**

Deborah W. Kredich, M.D., *Chairman*; Drs. Garrett, McCarty, Neelon, Pounds, and Wilfert; Ms. B. Gentry

## **Traffic and Parking**

Ralph Hawkins, *Chairman*; Dr. T. Anderson, Ms. Campbell, Fann, Fendt, Friedlein, Roberts; Messrs. Bennett, Crenshaw, Gentry, Harlan, and Robinette

## **Utilization Review**

Harold R. Silberman, M.D., *Chairman*; Drs. Barwick, Baker, Buckley, Burch, Fitch, Gianturco, Kylstra, McCann, McCarty, Jr., Mitchell, Murray, Rourk, Rundles, and Young; Ms. Baker, Bodine, Borden, Browning, Duncan, Dunn, Marlo, Minnich, Peroutka, Pierce, Rowland, Thompson, Tilley and Wicker; Mr. R. Moore

## **Veterans Administration Research and Development**

Wilkie A. Wilson, Jr., Ph.D., *Chairman*; Drs. Carson, Cowper, Crain, Duncan, Hamilton, Hatchell, Kudler, Yarger, and Young; Ms. Creech. *Ex-officio*: Drs. Newcomb and Shelburne; Ms. Small; Mr. Duncan

## **Chancellor's Veterans Administration**

William G. Anlyan, M.D., *Chairman*; William D. Bradford, M.D., *Vice-Chairman*; Drs. Busse, Carroll, Cavenar, Cohen, Feussner, Grant, Graham, Greenfield, Jennings, Lumb, Newcomb, Ravin, Rotman, Sabiston, Scott, Shelburne, Thompson, Wallace, Watkins, and Yarger; Mr. Carr; Ms. Bumgarten, and Dr. Booth

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## *General Information*



## History

I have selected Duke University as one of the principal objects of this trust because I recognize that education, when conducted along sane and practical, as opposed to dogmatic and theoretical, lines is, next to religion, the greatest civilizing influence.

I have selected hospitals as another of the principal objects of this trust because I recognize that they have become indispensable institutions, not only by way of ministering to the comfort of the sick, but in increasing the efficiency of mankind and prolonging human life.

*James Buchanan Duke, Indenture of The Duke Endowment, 1924*

By establishing the Duke Endowment, James Buchanan Duke expressed his hope that adequate and convenient hospital care would become available to all Americans. His further bequests provided for the opening, in 1930, of the School of Medicine, School of Nursing, and hospital which today are the core institutions of the Duke University Medical Center. By opening the first major outpatient clinics in the region in 1930, Duke recognized its responsibility for providing quality care to the people of the Carolinas. The Private Diagnostic Clinic, organized in 1932, not only provided coordinated medical and surgical care to private patients with moderate incomes but also allowed members of the medical faculty to contribute a portion of their earnings toward the continued excellence of medicine at Duke. In less than five years Duke was ranked among the top 25 percent of medical schools in the country by the Association of American Medical Colleges.

Building on this heritage, the Duke University Medical Center ranks among the outstanding health care centers of the world. Its pioneering medical curriculum, instituted in 1966, features a generous measure of elective course selection in the belief that all health professionals must be prepared for a lifetime of self-education. The scientific grounding for that education is provided through participation in a wide variety of ongoing research programs. The opening of Duke Hospital North in 1980 makes the Duke Hospital, with 1,008 beds, one of the most modern patient care facilities anywhere available. The combined strength of its teaching, research, and hospital care programs represents the continuing fulfillment of the dream of James Buchanan Duke.

Over the years the Medical Center has been enlarged and its programs expanded by new construction and by the acquisition of, and affiliation with, established hospitals.

Currently the Medical Center at Duke University occupies approximately 140 acres on the West Campus. The southern quadrant is contiguous with the main quadrangle of the University and consists of the following: *Davison Building*—Department of Pathology, Central Teaching Facility, Division of Audiovisual Education, Medical Center Administration, Student Lounge, School of Medicine, Office of Admissions, and depart-

mental research laboratories and offices. *Duke Hospital South*—inpatient care units, in- and outpatient diagnostic, treatment and support services including operating rooms, recovery room and laboratories, positron emission tomography imaging, nursing service administration, amphitheater, chapel, private diagnostic clinics, outpatient clinics, student infirmary, departmental offices; *Baker House*—Departments of Medicine, Anesthesiology, Obstetrics and Gynecology, outpatient diagnostic, treatment and support services including speech and hearing, pastoral care and counseling, and dentistry/oral surgery; *Barnes Woodhall Building*—inpatient care units, in- and outpatient diagnostic, treatment and support services including labor and delivery room and radiology, hospital administration, Department of Radiology, departmental offices; *Diagnostic and Treatment Building*—clinics, in- and outpatient diagnostic, treatment and support services, departmental research laboratories and offices; *Ewald W. Busse Building*—Center for the Study of Aging and Human Development, treatment and support services, departmental research laboratories and offices; *Eugene A. Stead Building*—inpatient care unit (research), departmental research laboratories and offices; *Clinical Research II*—hyperbaric medicine unit, departmental research laboratories and offices, clinical cancer research unit and the Department of Psychiatry; *Edwin A. Morris Clinical Cancer Research Building*—Inpatient care unit (research), clinics, diagnostic treatment and support services including Division of Radiation Oncology, departmental research laboratories and offices.

The northern quadrant has the following buildings: *Nanaline H. Duke Medical Sciences Building*—Departments of Biochemistry, Physiology, and Pharmacology; *Alex H. Sands Medical Sciences Building*—Department of Anatomy and basic science research programs of the Departments of Medicine, Surgery, Psychiatry, and Anesthesiology; *Edwin L. Jones Basic Cancer Research Building*—Director of Comprehensive Cancer Center, Department of Microbiology and Immunology and basic science research programs of Medicine, Surgery, Pediatrics, Obstetrics-Gynecology, Anatomy, and Pathology; *Clinical and Research Laboratory Building*—Howard Hughes Medical Institute, Molecular Genetics, Hospital Clinical Laboratories, Departments of Medicine, Pharmacology and Psychiatry; *Bell Building*—offices and laboratories of Medicine, Surgery, Pediatrics, Radiology, Anatomy, and Ophthalmology. It also houses Information Services and the Gross Anatomy Laboratories; *Seeley G. Mudd Communications Center and Library*—Medical Center Library, the Trent Collection of the History of Medicine, the Office of Public Relations, Office of Grants and Contracts, Continuing Medical Education Office, and the Searle Center for Continuing Education; *Joseph A. C. Wadsworth Building (Eye Center)*—inpatient care units, eye clinic, diagnostic, treatment and support services including operating rooms, recovery, Department of Ophthalmology, departmental research laboratories and offices; *Duke Hospital North Division and Anlyan Tower*—inpatient care units, diagnostic, treatment, and support services including operating rooms and recovery, labor and delivery suite, full term nursery, radiology, magnetic resonance imaging (MRI), laboratories, Departments of Medicine, Surgery, Pediatrics, and Anesthesiology departmental offices.

In the western quadrant of the campus are: *Surgical Oncology Research Building*, *Environmental Safety Building*, *Research Park Buildings I, II, III, and IV*—offices and laboratories of Medicine, Surgery, Pediatrics, Radiology, Microbiology and Immunology; *Vivarium*—Division of Laboratory Animal Resources and laboratory animal care facilities; *Cancer Center Isolation Facility*—special containment facility for cancer research.

In the eastern quadrant of the campus are: *Pickens Rehabilitation Center*—general and rehabilitation outpatient clinics; Student Health Service, Employee Health Service, and Faculty Family Health Service; *Civitan Mental Retardation and Child Development Center*—offices, clinics, and laboratories of Psychiatry and Pediatrics; *Trent Drive Hall*—Health Administration and Department of Community and Family Medicine.

The goal of the Duke University Medical Center is to be a leader in contemporary medicine. This involves maintaining superiority in its four primary functions: unexcelled patient care, dedication to educational programs, national and international distinction in the quality of research, and service to the region.



Growth is identified with deeper involvement in the social aspects of health, the establishment of advanced therapeutic and research facilities, and a medical teaching program that has attracted the attention of educators around the world.

## Resources for Study

**Library/Communications Center.** The Medical Center Library/Communications Center is located in the Seeley G. Mudd Building, midway between the north and south Medical Center campuses.

The Medical Center Library attempts to provide all informational services and collections necessary to further educational, research, and clinical activities in the medical field. The collection of approximately 232,000 volumes and 2,650 current journal subscriptions is freely available for use by Medical Center students and personnel; study accommodations for 500 readers includes extensive provisions for audiovisual learning. The library also includes the Trent Collection which is unsurpassed in the southeast as a resource for study of the history of medicine, and a branch collection of books and journals maintained in the Nanaline B. Duke Medical Sciences Building.

The Medical Center Library is open: Monday-Friday, 8:30 A.M.-midnight; Saturday, 10:00 A.M.-6:00 P.M.; Sunday, 12:00 noon-midnight. Summer and holiday hours are as announced.

Director: Warren P. Bird, M.S. (Columbia, 1964), *Associate Professor of Medical Literature*; Associate Director: Mary Ann Brown, M.A. (Peabody, 1960), *Librarian*; Curator of the Trent Collection: G.S.T. Cavanagh, B.S., B.L.S. (McGill, 1951), *Professor of Medical Literature*.

The Medical Center Bookstore offers a wide selection of biomedical textbooks and reference books, as well as an assortment of laboratory and clinical instruments and office supplies. Facilities for browsing in a pleasant atmosphere are available, as are special individualized services. The Bookstore is open: 8:30 A.M.-5:00 P.M., Monday-Friday.

Manager: Jim Savage

The Searle Center for Continuing Education in the Health Sciences provides accommodations for conferences, symposia, lectures and meetings to support the continuing education activities of the Medical Center. Provisions have been made for banquet and food service arrangements to complement the meeting facilities.

Director: Vickie Guarisco

**The Thomas D. Kinney Central Teaching Laboratory.** The Thomas D. Kinney Central Teaching Laboratory is located on the fourth floor of Davison Building where it provides laboratory, demonstration, and conference space for all courses taught in the basic sciences, with the exception of gross anatomy. A full-time staff maintains a wide range of equipment and provides supplies and services necessary for the teaching programs in allied health as well as medical education. This enables the academic staff of each department to devote its efforts entirely toward the students.

Six unit laboratories, each accommodating twenty students, and a twelve-person laboratory are devoted to instruction for the first year. All first year medical students are given space in one of these laboratories for their own work which they maintain for the entire academic year. Small laboratories are interspersed between the six unit laboratories and provide space for large pieces of equipment used in conjunction with exercises conducted in the unit laboratories. One large multipurpose laboratory (which can accommodate forty or more students) and one small room to accommodate twenty students provide space for a variety of teaching exercises. Other areas include demonstration and conference rooms and a microscopy laboratory for advanced courses offered during the third year. A computer cluster with word-processing software and patient simulations is available to students 24 hours a day. A new 30-workstation computer laboratory is now available for computer-assisted educational training for students, faculty and employees. Other services include in-house microscope cleaning and repair, and exam grading for multiple-choice questions.

Five large conference rooms in Duke South and twelve conference rooms in Duke North are scheduled through this office, providing additional teaching space for groups of 16 to 200 persons when necessary.

Manager: Carol G. Reilly, B.S.

**Division of Audiovisual Education.** The Division of Audiovisual Education serves the Medical Center by providing all types of audiovisual support materials to assist the faculty. There are three sections: Medical Art, Medical Photography, and Central Television.

The Medical Art Section provides illustrations produced by various art methods and techniques. Services rendered are surgical and anatomic drawings, schematic and mechanical drawings, diagrams, charts, graphs, designs, lettering, calligraphy, signs, and poster exhibits, as well as other forms of illustrations. Computer generated graphics is the newest service from the art section.

The Medical Photography Facility is staffed and equipped to provide a full range of photographic services for patient care, teaching, and research. Patient photography activity includes black and white and color photos in the studio, on the ward, in the clinic, or in the operating room. Copy photography includes a full range of slide services for internal and external lecture and presentation purposes. Black and white and color prints for publication, display and poster session purposes are also available. Other services include daily processing of Ektachrome film, location photography, and passport and application prints.

Central Television also supports teaching, research, and patient-care programs of the Medical Center. The three-fourths inch U-matic and one-half inch VHS video formats are used for color recording of patient education programs, lecture presentations, and surgical procedures as part of staff professional education. Motion pictures in color and with sound are also produced. Audiotope services, projectionists, and projectors are available.

Director: Thomas P. Hurtgen, M.B.A.

**Duke Hospital.** Duke Hospital, one of the largest private hospitals in the south, is part of the Medical Center and currently has 1,048 beds. The hospital directs its efforts toward the three goals of expert patient care, professional education, and service to the community. It offers patients modern comprehensive diagnostic and treatment facilities and special acute care and intensive nursing units for seriously ill patients. More than 34,300 patients are admitted annually. Surgical facilities include thirty-two operating rooms in which surgeons perform more than 22,500 operative procedures annually. Approximately 2,315 babies are born each year in the delivery suite. Other special facilities for patients include a heart catheterization laboratory, hemodialysis unit, cancer research unit, pulmonary care unit, hyperbaric oxygenation chamber, and cardiac care unit.

Close working relationships with private and governmental health and welfare agencies provide opportunities for continued care of patients after they leave Duke Hospital.

Ambulatory services include the nonprivate outpatient clinics, private diagnostic clinics, the employee health service, and the emergency department, with annual total patient visits of over 453,900. The clinical faculty of the Duke University School of Medicine participate in undergraduate and graduate medical education and practice medicine in the hospital and in private diagnostic clinics.

Duke Hospital, with a house staff of approximately 800, is approved for internship and residency training by the Council on Medical Education and Hospitals of the American Medical Association and is fully accredited by the Joint Commission on Accreditation of Hospitals.

**Veterans Administration Medical Center.** The Durham Veterans Administration Medical Center, with 435 beds, annually admits over 7,000 patients. The hospital is within walking distance from the School of Medicine and has closely integrated teaching and train-

ing programs for medical students and house staff. These programs are provided by the full-time professional staff who are members of the faculty of Duke University School of Medicine.

**Sea Level Hospital.** Sea Level Hospital in Carteret County, North Carolina, became part of Duke University Medical Center in 1969 as a result of a gift by D. E. Taylor and family of West Palm Beach, Florida. The seventy-two-bed community hospital retains its professional and administrative staff, with representatives of the Medical Center serving in an advisory capacity. It provides an opportunity for medical students to obtain experience in the practice of medicine in a small community.

**Lenox Baker Children's Hospital.** On November 1, 1987 the Lenox Baker Children's Hospital became a part of Duke University Medical Center, entering a new phase in its development as an orthopaedic and rehabilitation center for the children of North Carolina. A full spectrum of orthopaedic and rehabilitation services is offered to identify and meet realistic goals; and to educate, support, and assist families, schools, and communities in providing a rich environment for disabled children.

**Durham County General Hospital.** Durham County General Hospital is a county owned, 476-bed, general, short-term care community facility serving the residents of Durham County. This institution participates in many of the medical and health-related professional training experiences.

**Other Hospitals.** Various cooperative teaching and training programs are available for medical and allied health professional students and house staff at other hospitals including McPherson Hospital in Durham, Asheville Veterans Administration Medical Center in Buncombe County, Murdoch Center for Retarded Children and John Umstead Hospital in Butner, Dorothea Dix Hospital in Raleigh, and Cabarrus Memorial Hospital in Concord, North Carolina.

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*Program Information*



## The Medical Curriculum

In recent years, analysis and appraisal of medical curricula have resulted in changes in many medical schools. Several factors have required these changes. Important among them are the increasing scope and complexity of medicine generally and the dissatisfaction with the sharp cleavage between basic science and clinical years. As a result of long study, the Duke University School of Medicine instituted a major revision of the curriculum, beginning with the class which entered in the fall of 1966.

The aims of the present curriculum are: (1) to provide a strong academic basis for a lifetime of growth within the profession of medicine, with the development of technical competence, proficiency, and the proper attitudes peculiar to the practice of medicine as well as an appreciation of the broader social and service responsibilities; (2) to establish for the first year a basic science program which will fulfill the purposes of the increasingly heterogeneous student body; (3) to offer both clinical and basic science education simultaneously; (4) to permit the student to explore personal intellectual preferences and capabilities; (5) to allow indepth study in selected areas, either clinical or basic science; (6) to provide greater freedom of course selection and thus to encourage earlier career decision; and (7) to achieve better integration of the medical school curriculum with residency training and the practice of medicine.

The curriculum, while offering a previously unattainable degree of flexibility to medical education and new opportunities for intellectual exploration, also makes heavy demands upon the student. It should be recognized that medical students at the Duke University School of Medicine are expected to maintain a consistent level of performance and to demonstrate qualities of initiative and dedication to their chosen profession. A scholarly attitude toward medicine that will continue throughout an entire career is an important objective of the medical school. The foundations of this attitude to learning should accompany the student upon entering.

Students are expected to maintain at all times a professional attitude toward patients, to respect confidences, and to recognize that they are the recipients of privileged information only to be discussed within the context of scholarship and in circumstances that truly contribute to the educational process or to the care of the patient. This attitude involves consideration not only of speech and personal appearance but *also of morality, honor, and integrity.*

This attitude also involves a focus on medical ethics and human values. Beginning in the fall of 1987 with the first year class, the School of Medicine made this focus an intentional part of the curriculum. The full development of this will include each of the classes in the four-year medical school curriculum. Major advances in medical technology and sciences have made excellence in medical education a necessity. These advances also necessitate the preparation of physicians for dealing with new complexities of medical practice. And these advances and complexities also make it of paramount importance that medical education enable each student to grow in both depth and breadth as a human being. The Duke University School of Medicine is rising to this challenge.

## Doctor of Medicine Degree

The degree of Doctor of Medicine is awarded, upon approval by the faculty of Duke University, to those students who have satisfactorily completed the academic curriculum; demonstrated the intellectual, personal, and technical skills to function as a competent physician; demonstrated their fitness to practice medicine by adherence to a high standard of ethical and moral behavior.

The faculty of Duke University School of Medicine have developed general guidelines for technical standards for medical school admissions and degree completion. These are based on the report published by an AAMC Special Advisory Panel in January 1979, and are available on request from the school.

The awarding of degrees is contingent upon payment of, or satisfactory arrangements to pay, all indebtedness to the University.

**Course Requirements—First Year.** The student will study the principles of all the basic science disciplines. Rather than mastering an encyclopedic array of facts, the purpose will be to acquire familiarity with the major principles of each subject. The year will consist of instruction in the following:

Semester 1	Credit
Gross Human Anatomy	3
Histology: Cell and Tissue Biology	3
Biochemistry	5
Medical Physiology	4
Genetics	1
Neurobiology	4
	<u>20</u>

Semester 2	Credit
Pathology	5
Microbiology	5
Pharmacology	4
Human Behavior	2
Immunology	1
	<u>17</u>

Following the first year, there is a mandatory vacation before beginning the Introduction to Clinical Diagnosis course during the third week of July. Every class has Labor Day, Thanksgiving, Christmas, and spring break with the exact dates depending upon rotation and class schedules.

**Course Requirements—Second Year.** Satisfactory completion of the first year curriculum is a prerequisite to the second year curriculum. The second year will provide an exposure to clinical science disciplines, which permits students early in their careers to become participants in the care of patients. The acquired appreciation of the problems of the clinical areas and the opportunities to recognize the applications of the basic sciences should lead to a more meaningful selection of courses for the subsequent two years.



The Introduction to Clinical Diagnosis course, which occupies the seven weeks preceding the core clinical rotations, is followed by eight-week rotations in internal medicine, surgery, obstetrics/gynecology, pediatrics, and psychiatry, and either an eight-week rotation in family medicine or a four-week rotation in family medicine and a four-week rotation in neurology.

**Course Requirements—Third and Fourth Years.** Satisfactory completion of the second year curriculum is a prerequisite to the elective curriculum. The third and fourth years of undergraduate medical education are elective and build upon the experiences in basic science and clinical medicine of the first two years. One half of this experience must be in basic science and one half in clinical medicine. The purpose of the basic science experience is to provide each student an opportunity to focus in an area or areas of interest and pursue, in depth, a scholarly activity. Time may also be spent gaining strength in areas of basic science weakness.

Each student determines a home base study program for the basic science elective experience. With the aid of advisors, the individual basic science elective program is devised to include an area of scholarly work to pursue in depth a program which may or may not be an independent biomedical research project. Any combination of: (a) research preceptorship, (b) tutorials, or (c) courses inside or outside the home base study program may comprise the overall basic science elective experience.

The clinical elective experience should be used to: (1) aid in decision making about the area of choice of postgraduate training, (2) obtain experiences in areas that would not be included in that postgraduate training, and (3) above all, pursue active experiences

in patient care sufficient to provide the basic skills necessary for the doctor/patient interaction. With rare exception, the basic science elective experience should be taken as a block.

Recipients of a Ph.D. degree in a basic science subject or completion of one of the special study programs may fulfill the requirements for basic science. Specific prerequisites for elective courses may be required.

The elective courses of study offered are described under each department. The wide selection affords an opportunity for students to design programs to best satisfy their needs, with guidance from their advisers. Thirty-six credits in each elective curriculum, i.e., basic science and clinical science, are required for graduation.

As an alternative after completion of the second year, the student may enroll as a Ph.D. candidate in one of the basic sciences, earning this degree in two or three years. Then, having completed three of the four years necessary for a Doctor of Medicine degree, the student may earn that degree by completing a fourth clinical year.

The third and fourth years will be divided into four terms of sixteen weeks each. Certain courses as noted will be offered during the summer term.

**Promotion.** Where appropriate, certification by the individual faculty person or by the delegated representative of each departmental chairman that a student has satisfactorily completed requirements for a course shall constitute grounds for a grade of "passing" or a grade of "passing with honors." "Passing with honors" is reserved for those students who have performed in an extraordinary manner in the opinion of the faculty.

An "incomplete" grade shall be reserved for those students who have not met all of the requirements because of illness or other such extenuating circumstances. "Incompletes" that are not satisfied within one calendar year automatically become "failures." It is the departmental chairman's responsibility or that of the delegated representative of the departmental chairman to certify that an "incomplete" has been satisfied and to so notify the Registrar. A "passing grade" shall be placed alongside an "incomplete" on the permanent and official transcript. All first year courses must be satisfactorily completed before a student may enroll in second year courses. All second year courses must be satisfactorily completed before a student may enroll in the elective curriculum.

A "fail" grade is recorded on the permanent record of a student by the Registrar upon certification by the individual faculty person or the delegated representative of the departmental chairman that unsatisfactory work has been done in the opinion of the faculty. Failures cannot be erased from the permanent record but the requirements of the course may be satisfied by repeating the course in a satisfactory manner at which time a passing grade is recorded on the official and permanent transcript.

Each student's record will be reviewed periodically by promotions committees composed of the departmental chairmen or their designees. There will be two such committees: one for basic science and one for clinical science. Recommendations by these committees will be made to the Dean of Medical Education who may follow one of several options:

1. Promote students whose work is satisfactory;
2. Warn students whose work is less than satisfactory that they must improve their scholastic endeavor;
3. Place on probation students whose work is unsatisfactory; or
4. Request the resignation of any student who is considered an unpromising candidate for the degree of Doctor of Medicine.

A student wishing to appeal a decision may do so to the Dean of Medical Education within two weeks of notification.

The Dean of Medical Education, with the advice of the Medical Center Policy Advisory Committee, reserves the right to require the withdrawal of any student at any time if, in his opinion, the student should not continue in the School of Medicine.



**Satisfactory Progress.** Satisfactory progress for students in the School of Medicine shall be construed as the successful completion of all requirements necessary for the advancement from one year to the next. These requirements are as follows:

*First to Second Year.* Completion of core basic science courses in one calendar year.

*Second to Third Year.* Completion of core clinical science courses within fourteen months.

*Third to Fourth Year.* Completion of 36 elective course credits within one calendar year.

*Fourth Year to Graduation.* Completion of an additional 36 elective credits within one calendar year.

**Leave of Absence.** With the approval of the Dean of Medical Education, a student may be granted an official leave of absence for two or more consecutive terms but not to exceed one calendar year. Extensions beyond one calendar year require yearly approval by the dean. In the following circumstances a student must request a leave of absence: a freshman who will not be enrolled for the entire first year; a sophomore who will not be enrolled during an entire term and, thereby, not complete the core clinical science courses within fourteen months; and a third or fourth year student who will not be enrolled for consecutive terms in the fall, spring, and/or summer.

**Visiting Students.** The School of Medicine provides opportunities for visiting students to enroll in elective courses for a maximum period of eight weeks. The School of Medicine does not offer long term or extensive clinical experience (sometimes called externships or clerkships) sufficient to satisfy the clinical educational requirements of foreign medical schools. For information write to: Coordinator, Visiting Students, Box 3005, Duke University Medical Center, Durham, North Carolina 27710.

## Combined Degree Programs

**Medical Scientist Training Program.** The Medical Scientist Training Program is designed for highly qualified students strongly motivated toward a career in medical sciences and academic medicine. It provides an opportunity to integrate graduate education in one of the sciences basic to medicine with the full clinical curriculum of the School of Medicine. The program requires, on the average, six to seven years of study and leads to both the M.D. and Ph.D. degrees. Although the special emphasis of this program is on basic medical science, the trainees, because of their education in clinical medicine, have a remarkable range of career opportunities open to them. Graduates of this program follow one of two broad paths. Some embark directly on careers in teaching and research in one of the basic medical sciences, while maintaining strong ties with clinical science as a result of their combined training. Others enter residency programs before pursuing investigative and teaching careers in clinical medicine, carrying with them strong academic backgrounds which allow them to conduct fundamental research with a foundation of superior training and experience in basic sciences.

**Eligibility.** Applicants must meet the admission requirements of both the Medical School as a candidate for the M.D. degree, and the Graduate School as a candidate for the Ph.D. degree. Most candidates apply for admission to the first year of the program, but in special cases applications can be accepted from students who are in residence in the Medical School or Graduate School of Duke University. In addition to the minimum requirements for acceptance to the Medical School and the Graduate School, advanced course work in science and mathematics and prior research experience (or other evidence of research aptitude) will count heavily in the selection of candidates.

**Financial Support.** Students admitted to the first year of the program will receive a traineeship award, consisting of a stipend and full tuition allowance, provided by a National Research Service Award from the National Institutes of Health. Currently the annual stipend is \$8,552, and financial support from that award can be furnished for up to six years, assuming normal progress. These six years need not be consecutive; this permits

flexibility in funding in case more than six years are required for completion of the curriculum. Funding by the NIH is limited to citizens or permanent residents of the United States.

*The Training Program.* This program has been designed to offer trainees great latitude in the selection of course material. Basic requirements are two academic years composed of the first basic science year and the second clinical science year of the curriculum for medical students at Duke University. Following completion of the second year, the trainee enters the graduate program to complete the requirements for the Ph.D. degree. One more academic year of elective clinical study is necessary to complete the requirements for the M.D. degree. Both degrees are awarded at the completion of this sequence. Minor variations in this schedule can be arranged if this is advantageous to the student's education.

**Year 1—Core Basic Science Year.** This year consists of courses in anatomy, biochemistry, genetics, microbiology, pathology, pharmacology and physiology.

**Year 2—Core Clinical Science Year.** This year encompasses a comprehensive approach to medicine oriented to the patient as a whole. The year provides fundamental training in clinical medicine, with emphasis on the relationships between general biological processes, from conception through birth, development, and maturation to senescence and death, as well as individual clinical states. Special consideration is devoted to the pattern of developmental sequences and to the changes in that pattern determined by genetic composition and the particular environment in which the patient lives.

During the second year, the trainee is taught primarily by teacher-investigators from the clinical departments. The Introduction to Clinical Diagnosis course occupies the six weeks preceding the core clinical rotations. The balance of the second year consists of equal eight-week rotations. These rotations are offered in internal medicine, surgery, obstetrics/gynecology, pediatrics, psychiatry, and family medicine.

**Years 3, 4, 5, (6)—The Graduate Years.** During the third, fourth, and fifth and, if necessary, sixth year of the program, the trainee pursues graduate study to satisfy the requirements for the Ph.D. degree.

These requirements include: (1) completion of necessary course work, (2) adequate performance in the preliminary examination, (3) original research suitable for a dissertation, and (4) successful defense of the thesis in the final examination. Detailed description of the other general requirements for the Ph.D. degree are stated in the *Bulletin of the Graduate School*.

The graduate curriculum of each trainee is developed in consultation with the director of graduate studies of the department in which the trainee elects to study and requires the approval of the Medical Scientist Training Program Committee. Since most of the ordering ideas and experimental techniques of all the medical sciences derive from mathematics and the physical sciences, it is essential to ensure that all students in the program have an adequate foundation in these subjects. Because of the close working relationship and geographical proximity of the departments of medical and physical sciences at Duke the setting is unusually favorable for the achievement of that goal.

Descriptions of the graduate courses in the Departments of Biological Anthropology and Anatomy, Pathology, Microbiology and Immunology, Biochemistry, Genetics, Cell Biology, Pharmacology, Biomedical Engineering, Neurobiology, and Computer Science are listed in the *Bulletin of the Graduate School*. Trainees are encouraged to select courses which relate to their developing individual interests rather than follow a prescribed curriculum applied to all students in a given discipline. Such range, flexibility, and freedom are the essence of graduate education. The original research and dissertation of each trainee is supervised by a faculty adviser chosen by the trainee in consultation with the Director of Graduate Studies in the appropriate department. The faculty adviser is the chairman of the trainee's supervisory committee, which consists of at least three members from the major department. This committee generally administers the preliminary examination before the student commences original research and the final examination after the student completes the dissertation.

**Final Year—An Elective Year in Clinical Science.** In this year, which is entered only after completion of all requirements for the Ph.D. degree, a faculty adviser from the clinical discipline in which the student is most interested is assigned. The student and the adviser construct an individualized curriculum, which often places major emphasis on one clinical area and minor emphasis on other fields. One aim is the integration of research interests and clinical experience in such a way that the student's research competence will be facilitated; therefore, this year is planned with regard to the trainee's proposed career in research as well. This elective year provides further training in clinical medicine to complement the second or core clinical year, so that the trainee's total clinical experience is the same as that given in the regular clinical years of medical school (the third and fourth years in the majority of schools). It should be noted that since students in the program receive the M.D. degree upon completion of this final year, great care is taken by the faculty to ensure that students are competent and knowledgeable in current concepts of patient care. It is hoped that the final year will provide the student with an experience which is not repeated during the residency but will serve to complement later phases of training. Thus, future surgeons might be exposed to fields other than surgery, since they will receive intensive training in that discipline during their residency programs.

*Application and Admission Procedure.* The following guidelines should be observed by individuals applying to the Medical Scientist Training Program.

1. The application form for the Duke University School of Medicine should be completed and submitted as early as possible, since acceptance into the Medical Scientist Training Program requires acceptance by both the Program Committee and the Medical School Admissions Committee. Applicants who cannot be accepted into the program are still fully eligible for acceptance to the medical school if the Medical School Admissions Committee considers them qualified and desirable.
2. The application form for the Medical Scientist Training Program should be completed and submitted no later than 1 December. The application to the School of Medicine should be mailed no later than 15 December.
3. To facilitate review of this application, the Medical College Admission Test should be taken, if possible, in May of the year in which the application is submitted.
4. Only those applicants who are accepted for the program are requested to complete an application form for the Graduate School. The Graduate Record Examination is not required for this purpose.
5. Applicants are notified about acceptance into the program on or about 15 February.

Additional information may be obtained by writing Salvatore V. Pizzo, M.D., Ph.D., Director, Medical Scientist Training Program, Box 3712, Duke University Medical Center, Durham, North Carolina 27710.

**The Medical Historian Program.** The Medical Historian Program is conducted under the auspices of the School of Medicine and the Graduate School. Two courses are offered: a combined M.D.-Ph.D. (extending over six years) and a M.D.-M.A. (four or five years depending on use of summer sessions). The choice of Ph.D. or M.A. depends on the career goals of the students. Those wishing to put a major effort into scholarly activities in the history of medicine will generally be advised to undertake the Ph.D.

The basic requirements for both courses are two academic years in the School of Medicine consisting of core basic sciences in the first year and core clinical rotations in the second year. The student then enters the Department of History. A range of appropriate courses are available. Following the completion of the Ph.D. or M.A., the student resumes requirements for the M.D. degree.

*Application and Admissions Procedures.* Applicants must meet the requirements for admission to the School of Medicine and the Graduate School in the Department of History. Candidates who have completed two years of medical school will also be considered. In addition to the minimum requirements established by the School of Medicine and the

Graduate School, courses in history and in the history and philosophy of science will count in the selection of candidates.

Applicants should complete and submit an application form to the Duke University School of Medicine and to the Graduate School for admission to the Department of History.

Additional information may be obtained by writing to: Peter C. English, M.D., Ph.D., Box 3420, Duke University Medical Center, Durham, North Carolina 27710.

**The Medicine and Public Policy Program.** This program, which normally requires a maximum of five years to complete, is offered to meet the growing demand for persons who combine medical skills and training with a capacity for analytic public decision-making. It aims at training those persons with requisite talent to be leaders in the development and implementation of health policy at all levels of government. Such leadership might be provided as an elected or career public official, as a leader of medical professional organizations, or as a practicing physician or medical scholar active in public affairs.

Utilizing the faculty and resources of the School of Medicine and the Institute of Policy Sciences and Public Affairs, the program offers students a multidisciplinary education that aims at providing:

1. A complete course of study in basic medical sciences and clinical training in the practice of medicine identical in scope and rigor with the education received by students enrolled in the Doctor of Medicine program alone;
2. Familiarity with the organization and financing of health services, with particular focus on the economics and politics of health care;
3. An understanding of the political, bureaucratic and social processes that define public problems and limit alternative approaches to their solutions;
4. A capacity for quantitative and logical methods of analysis useful in forecasting and appraising policy consequences and in evaluating existing policies;
5. An understanding of the uses and limitations of various analytic techniques and an awareness of the value considerations and ethical choices implicit in particular policy alternatives.

During the first two years at Duke, students enroll in the normal course of study in the School of Medicine. In the third year, course work shifts primarily to the institute. In the fourth year, students do most of their work in the School of Medicine and complete a client-oriented study of a particular problem in health policy. During the fifth year, students complete their requirements in the School of Medicine, at the completion of which they receive both the M.D. and A.M. in public policy sciences degrees.

*Admissions.* Students may apply for admission to the program in medicine and policy sciences concurrent with application to the School of Medicine or during their first or second years.

*Applications.* Requests for applications and specific questions about the program should be addressed to the Director of Graduate Studies, Institute of Policy Sciences and Public Affairs, P.O. Box 4875, Duke Station, Durham, North Carolina 27706.

**The M.D.-J.D. Program.** The School of Medicine and the School of Law of Duke University jointly sponsor a program of combined medical and legal education. The program provides an opportunity to acquire a full basic study of the two fields. Upon satisfactory completion of the required course of study, candidates will be awarded both the M.D. and the J.D. degrees.

*Course of Study.* The student in the M.D.-J.D. Program generally begins a six-year course of study in the School of Medicine. As in the regular M.D. Program, the first year is devoted to the basic medical sciences and the second year to the basic clinical disciplines. At this point the student enters the School of Law, where the first-year curriculum is the same as that of other law students. During the next two years the student takes approximately one and one-half semesters in the law curriculum, including available health law

courses, and then may apply up to twelve additional hours of medical school courses toward the law degree. The sixth and final year is spent in elective clinical work in the Medical School tailored to the student's specialized needs. In addition, the student completes eighteen semester hours, or two summer sessions, of elective basic science work.

*Eligibility.* Applicants for the M.D.-J.D. Program must qualify for admission to both the School of Medicine and the School of Law. The usual approach is to apply for both schools simultaneously, thus reserving a place in the program prior to arrival. Applications are also accepted from members of the first and second year medical school class for admission to the School of Law and from the second year law school class for admission to the School of Medicine.

*Application Procedure.* Application forms for the School of Law may be obtained by writing to the Office of Admissions, Duke University School of Law, Durham, North Carolina 27706. Applications for the School of Medicine shall be made by utilizing the AMCAS procedure described in this bulletin.

*Deadlines.* For those seeking simultaneous admission to both schools: at the end of the junior year take the new Medical College Admissions Test (MCAT) and the Law School Aptitude Test (LSAT).

For the Medical School complete the AMCAS application procedures and upon receipt of the supplemental application form from Duke, check the box indicating M.D.-J.D. Program. Deadline for AMCAS procedure is November 1. There is no deadline for the Law School but January 15 or earlier submission is suggested.

**The M.D.-M.P.H. Program.** Students enrolled in the School of Medicine, after satisfactory completion of the first two years of the regular curriculum, may request approval to seek a Master of Public Health degree at the University of North Carolina, Chapel Hill, or at another approved institution. The program is designed to train physicians in epidemiology, biostatistics, environmental and occupational health, and in planning, administering, and evaluating health care delivery systems. Upon receipt of the M.P.H. degree, students are awarded one half year (18 units) of elective credit toward the M.D. degree. This credit award, to be made by the Dean for Medical Education, may be prorated between clinical and basic elective units depending upon the course of study pursued by the student.

For additional information, interested students should contact George R. Parkerson, Jr., M.D., M.P.H., Department of Community and Family Medicine, Duke University School of Medicine, Durham, North Carolina 27710 at the beginning of the second year.

**Commencement.** Graduation exercises are held once a year, in May, when degrees are conferred on, and diplomas are issued to, those who have completed requirements by the end of the spring semester. Those who complete degree requirements at the end of the fall or summer terms receive diplomas dated 30 December or 1 September, respectively. There is a delay of about one month in the mailing of September and December diplomas because diplomas cannot be issued until they are approved by the Academic Council and the Board of Trustees.

## Graduate Medical Education

**Residencies.** Appointments are from 1 July through 30 June with few exceptions. Residents receive stipends, professional liability insurance, disability insurance, life insurance, uniforms, and laundry of uniforms.

Residencies offered with the chairman or chief of each service are as follows:

- Anesthesiology .....(Chm.) David Watkins, M.D., Ph.D.
- Family Medicine .....(Chf.) Keith Frey, M.D.
- Occupational Medicine .....(Chf.) George Jackson, M.D.
- Internal Medicine .....(Chm.) Joseph Greenfield, M.D.
- Dermatology .....(Chf.) Sheldon Pinnell, M.D.
- Neurology .....(Chf.) Allen Roses, M.D.

Obstetrics and Gynecology .....	(Chm.) Charles Hammond, M.D.
Ophthalmology .....	(Chm.) Robert Machemer, M.D.
Anatomic and Clinical Pathology .....	(Chm.) Robert Jennings, M.D.
Dermatopathology .....	(PID.) Bernard Fetter, M.D.
Neuropathology .....	(PID.) Peter Burger, M.D.
Pediatrics .....	(Chm.) Samuel L. Katz, M.D.
Pediatric Allergy .....	(Chf.) Rebecca Buckley, M.D.
Pediatric Cardiology .....	(Chf.) Madison S. Spach, M.D.
Psychiatry .....	(Chm.) Bernard Carroll, B.M., B.S.
Child Psychiatry .....	(Chf.) John G. Looney, M.D.
Radiology .....	(Chm.) Carl Ravin, M.D.
Diagnostic Radiology .....	(PID.) Reed Rice, M.D.
Therapeutic Radiology .....	(Chf.) Leonard Prosnitz, M.D.
General Surgery .....	(Chm.) David C. Sabiston, Jr., M.D.
Neurosurgery .....	(Chf.) Robert H. Wilkins, M.D.
Oral Surgery .....	(Chf.) Donald J. Serafin, M.D.
Orthopaedic Surgery .....	(Chf.) James R. Urbaniak, M.D.
Otolaryngology .....	(Chf.) William R. Hudson, M.D.
Plastic Surgery .....	(Chf.) Donald J. Serafin, M.D.
Thoracic Surgery .....	(Chf.) David C. Sabiston, Jr., M.D.
Urology Surgery .....	(Chf.) David F. Paulson, M.D.

Duke University Medical Center is a participating member of the National Resident Matching Program, One American Plaza, Suite 807, Evanston, Illinois 60201, and all applicants for first-year post-medical school appointments must register with this program.

Both men and women graduates of any L.C.M.E.-accredited medical school are eligible for appointment and all applicants will be considered without regard to race, color, religion, sex, or national origin.

Requests for application forms and information about straight residencies should be addressed to the Chairman of the service under which training is desired. A transcript of the medical school record is required, and must either accompany the application or be furnished by the Dean of the Medical School.

Graduates of medical schools outside the United States and Canada must hold a valid standard or interim certificate of the Educational Commission for Foreign Medical Graduates (ECFMG), 3624 Market Street, Philadelphia, Pennsylvania 19104, to be considered for appointment to residencies. Physicians who are not U.S. citizens or permanent residents and who will need sponsorship as J-1 exchange visitors must have passed the National Board of Medical Examiners Exam (NBME) Parts I and II, or the Foreign Medical Graduate Examination in the Medical Sciences (FMGEMS) or the Visa Qualifying Examination (VQE) to be eligible for a visa. An application which does not include a copy of a valid ECFMG certificate and evidence of passage of one of these exams will be considered incomplete and may be discarded without further notice to the applicant. First-year positions are rarely available for foreign medical graduates. For further information contact Catheryn Cotten, International Office, Box 3882, Duke University Medical Center, Durham, North Carolina 27710.

Reasonable requests for reduced scheduling will be considered. Inquiries should be directed to the training program directors of approved residencies or to the Office of House Staff Affairs. For further information, please contact Mary C. Fendt, Administrator, House Staff Office, Box 3951, Duke University Medical Center, Durham, North Carolina 27710.

The Durham Veterans Administration Medical Center adjoins the Duke University Campus and is operated under the supervision of the vice-president's Committee of the Duke University Medical Center. The full-time professional staff of the V.A. Medical Center are all faculty members of the School of Medicine. All training programs are integrated with corresponding programs at the Duke University Medical Center, including rotation of house officers at each hospital.

All residents and clinical fellows are required to be licensed by the State of North Carolina. This may be accomplished by (1) a residency training license that covers only training by Duke and is not convertible to a full North Carolina license or (2) a full North Carolina license that is a complete medical license obtained either by State Boards (North

Carolina Boards can only be taken upon completion of internship) or National Boards and is fully reciprocal with other states for full licenses. Duke University Medical Center cannot make applications for house staff. Since house staff members must have the license before beginning duties, arrangements for the license should be made in advance. All incoming house staff *must* contact Bryant Paris, North Carolina State Board of Medical Examiners, 222 North Person Street, Raleigh, North Carolina 27601, for current licensure requirements.

Application forms and information for residencies or fellowships may be obtained by writing the chairman of the appropriate department, Duke University Medical Center, Durham, North Carolina 27710.

## Postgraduate Education

**Continuing Medical Education.** From its beginning in 1930, Duke has been committed to and actively engaged in a program of training young men and women for academic and scientific careers, as well as for the practice of medicine. This philosophy in concert with the aims and goals of both the School of Medicine and Duke University Hospital has fostered the development of continuing medical education, the mechanism for providing opportunities to continue the pursuit of excellence in medical education.

*Mission.* The Duke University Medical Center with its School of Medicine and Hospital are committed to the continuing education of physicians and other health professionals. A goal of improving patient care provides the impetus of programs for continuation of physician education following undergraduate and graduate medical education. The medical administrators of the Medical Center recognize that there is an educational responsibility which is included in the medical mission of the institution.

Within the purview of the Duke University School of Medicine and the academic affairs branch of the Medical Center, the Office of Continuing Education has been designated to implement the institution's commitment to continuing medical education (CME).

*Policies and Guidelines.* The Dean of Medical Education appoints the Director of Continuing Medical Education. The Director is responsible for providing leadership, liaison, and recommendations for departmental and institutional CME activities.

To assist the Director of Continuing Medical Education, the Dean has appointed a committee that assists with the implementation of continuing medical education. The committee is composed of representatives from the departments, special divisions, or special areas of the Medical Center. The committee is charged with advising on policies and procedures for the development of continuing medical education within the School of Medicine and the Medical Center.

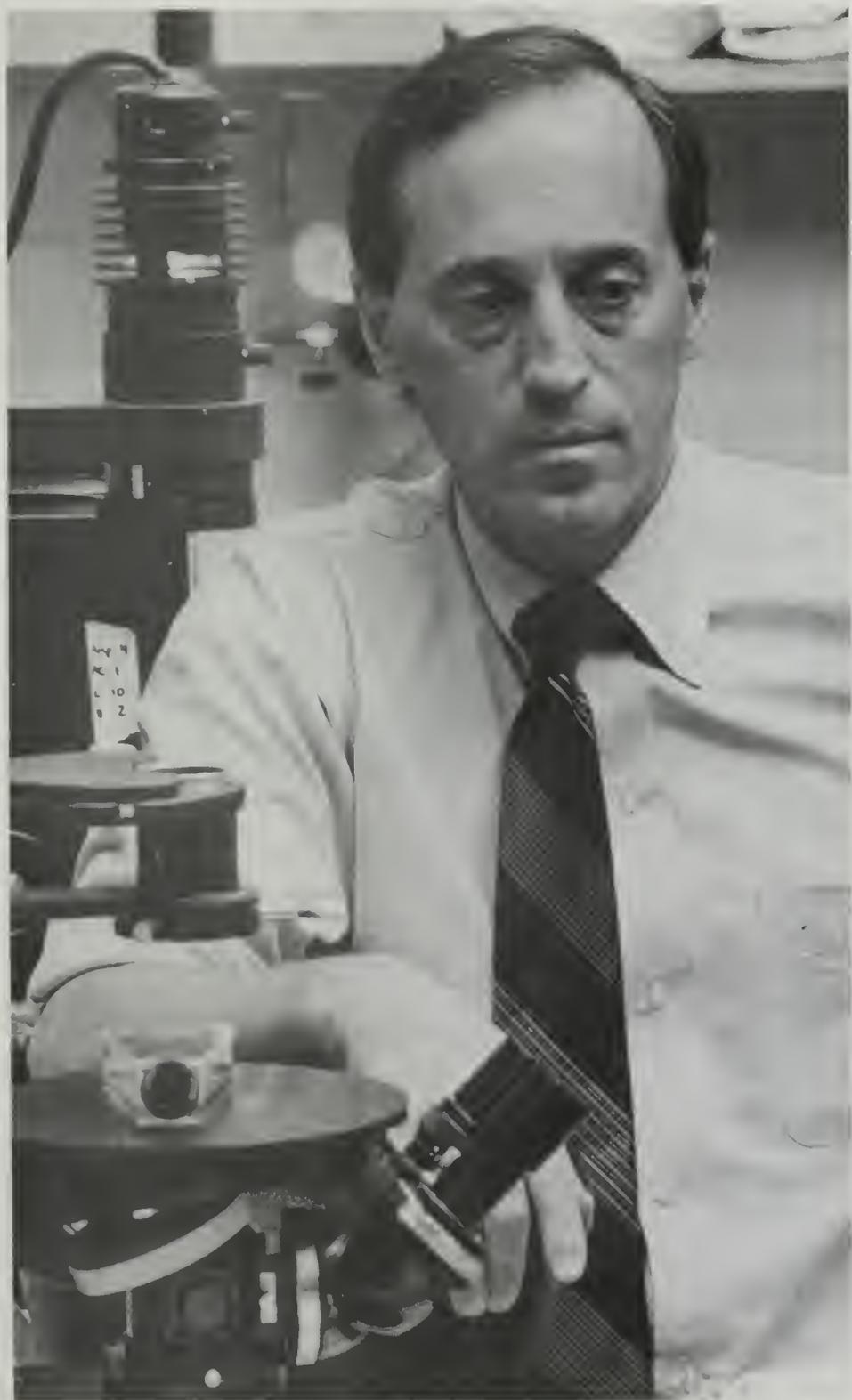
The Office of Continuing Medical Education and the committee are jointly charged with the following responsibilities:

1. Advise on development of CME policies and procedures;
2. Initiate CME activities;
3. Maintain the CME program's national accreditation;
4. Offer CME credit for approved activities;
5. Monitor CME activity development and execution in response to the needs of practicing physicians;
6. Maintain responsibility of recording CME credits issued to participants of all Duke University School of Medicine approved activities;
7. Provide guidelines, recommendations, and support for new and innovative CME activities following appropriate needs assessment;
8. Initiate CME activities in cooperation with departments of the Duke University Medical Center, the Office of Medical Alumni Affairs, and other appropriate organizations within the institution that embrace the CME commitment to alumni and practicing clinicians in the state, region, and nation; and,
9. Seek new sources of additional support for CME programming and development.

Numerous formal postgraduate courses are given throughout the entire year for physicians in general practice as well as in all specialties. Conferences and tutorial seminars are also available to any physician who desires to attend and participate. Physicians in practice may make arrangements for a period of one day or more for courses tailored to their particular interests. These personal contacts with senior faculty and residents, including patient examinations as well as follow-up care, provide in-house training experience.

For additional information, please contact Roy T. Parker, M.D., Director, or Cynthia C. Easterling, M.Ed., Coordinator, Continuing Education, Duke University School of Medicine, Box 3108, Durham, North Carolina 27710, (919) 684-6878 or toll free in the U.S. 1-800-222-9984.





*Student Life*



## **The University**

Duke University, located in Durham, North Carolina, has an enrollment of 10,826 students from all fifty states and from many foreign countries. Currently, Trinity College of Arts and Sciences, the Graduate School, and the Schools of Business Administration, Divinity, Engineering, Forestry, Law, Medicine, and Nursing comprise the University.

Durham, with a population of more than 100,000, is in the Piedmont region of North Carolina, which has easy access to the sea coast and mountains. It is one of the three cities bounding the Research Triangle Park where numerous private research laboratories and governmental agencies are located. Duke University is twenty-five miles from North Carolina State University in Raleigh and eight miles from the University of North Carolina at Chapel Hill.

## **Conduct of Students**

Duke University expects and will require of all its students cooperation in developing and maintaining high standards of scholarship and conduct.

All students are subject to the rules and regulations of the University which are currently in effect, or which, from time to time, are put into effect by the appropriate authorities of the University.

Any student, in accepting admission, indicates the willingness to subscribe to and be governed by these rules and regulations and acknowledges the right of the University to take such disciplinary action, including suspension and/or expulsion, as may be deemed appropriate, for failure to abide by such rules and regulations, or for conduct adjudged unsatisfactory or detrimental to the University.

## **Living Accommodations**

Duke University has several residential apartment facilities in which single graduate and professional students live. These apartments are available for continuous occupancy throughout the calendar year. Married student housing is not available. Married students should refer to the section entitled Off-campus Housing. All the apartments are completely furnished by the University. An itemization of furnishings is included with the floor plans sent out in the application packet.

Spaces in apartments for single students are provided on an individual basis with each student paying rent per academic term to the University. This method permits students to share apartments with others of their choice. When this is impractical, the Department of Housing Management strives to place persons with similar interests together.

**Town House Apartments.** Town House Apartments, located about three blocks from the main East-West Campus bus line, is a thirty-two-unit complex. These apartments are more spacious than most apartments found on campus or in Durham. Because of its location away from the academic facilities, students find that these apartments offer a change from normal campus life and activities.

Each air-conditioned apartment includes a living room, a master bedroom, a smaller bedroom, a bath and a half, and an all-electric kitchen with a dining area. Spacious closets and storage spaces are provided within each apartment. A swimming pool, located in the center of the complex, is open during the late spring and throughout the summer months.

Occupants must make arrangements with the local utility companies to pay for electricity, gas, and telephone service. These companies usually require a deposit when initial applications for service are made. Utility companies should be contacted prior to arrival as it usually takes several days to obtain service.

**Central Campus Apartments.** During 1975, Duke University completed a 500-unit apartment complex.

A swimming pool, located in the center of the complex, is open during the late spring and throughout the summer months. Additional facilities include a pub, convenience store, tennis courts and basketball courts.

All utilities water, heat, air-conditioning, and electricity are provided. Telephones, which are provided in preinstalled locations in each apartment, are serviced through Duke University's Tel-Com telephone service. Residents are responsible for having their phones connected.

Efficiency, two-bedroom, and three-bedroom apartments are rented to single students. Efficiency units are very limited in number and are not generally available to new students.

**Modular Homes.** The University owns six prefabricated modular homes that are located one block from the main East-West Campus bus line. Three of the three-bedroom houses are occupied by single graduate and professional students. The houses, completely furnished, provide more privacy than most apartments.

In addition to having three bedrooms, each home contains a full bath, an all electric kitchen, a dining area, and a living room. Sliding glass doors in the living room open onto a wooden deck. An outside storage area is provided in addition to spacious closets within the home. Except for the bathroom, kitchen, and dining area, the homes are completely carpeted and paneled.

Residents of the Modular Homes are responsible for making arrangements with local utility companies for electricity and telephone services.

**Application Procedures.** When students are informed of their acceptance to the Medical School they will also receive a postcard on which to indicate preference for University housing. This postcard should be returned to the Department of Housing Management. Detailed information on the types of accommodations and application forms will be forwarded to the accepted student. Assignment to all University housing is made on a first-apply, first-assigned basis, and it is not guaranteed.

**Off-campus Housing.** The Department of Housing Management maintains a listing of rental apartments, rooms and houses provided by property owners or real estate agencies in Durham. These listings are available in the department only; during the summer an assistant is available to answer questions and aid students in their attempt to obtain housing off campus. Information on commercial complexes in the Durham area may be obtained by indicating a preference for off-campus housing on the postcard which you will receive with your acceptance notice. Except for assuring that owners sign a statement of nondiscrimination, off-campus property is in no way verified and neither the University nor its agents negotiate between owners and interested parties.

The search for accommodations should begin as soon as possible after acceptance to the Medical School. A visit of two or three days will allow you the opportunity to make use of the off-campus service and to inspect personally the availabilities.

**Dining Facilities.** In addition to the Medical Center cafeteria, a number of dining facilities are located within a short distance from the Medical Center. Duke University Food Services (DUFS) operates a variety of dining facilities, including "all you can eat" cafeterias, a la carte restaurants, fast food facilities, salad bars and elegant dining restaurants. The seventeen DUFS locations on campus give Duke students virtually unlimited dining options.

## Services Available

**Student Personal and Professional Advisory Program.** One important objective of Duke University School of Medicine is to promote an informal, cordial student-faculty relationship. It is also felt that this type of relationship will promote better curriculum advising and career advising for the student. Each entering student is assigned to one of four Advisory Deans, who oversees his/her academic progress and with whom the student will meet in small groups and individually for personal advising, curriculum planning, and career counseling. A full-time Associate Dean is available to students for personal and crisis counseling or referral on a strictly confidential basis.

**Student Health Service.** In recognition of the unique health needs of medical students whose activities bring them into far greater contact with communicable disease than the average university student, a special health program for medical students has been established. Each freshman will submit, prior to entry, the standard Duke Health History Report Form to be completed by the student and reviewed and signed by a physician. Before entry into the first year class, all students must present written proof of current immunization status. A special form will be provided for this purpose. Proof of immunity to polio, mumps, measles, rubella, diphtheria, and tetanus must be presented before matriculation. Students will not be permitted to remain in school unless these requirements are met.

The objective of the Student Health Service is to provide medical care and advice to students. The main components of the Health Service include the Student Health Clinic and the Health Education Center in the Pickens Health Center, located at the corner of Trent Street and Erwin Road, and the infirmary located on the fourth floor of Duke Hospital, South Division. For treatment of illnesses or injuries (other than life threatening emergencies), students should first contact the Student Health Clinic for an appointment (684-6721).

The Student Health Clinic is open during regular and summer sessions to all students. During the regular academic year there are extended hours into the early evening on weekdays, and limited weekend hours. Outside regular clinic hours, students should call or visit the University Infirmary (684-3367) open twenty-four hours daily during regular academic sessions. Transportation to Student Health Clinic or Infirmary may be made by the campus bus or via Duke Public Safety Officers. Emergency transportation to the clinic or Duke Emergency room is also available.

A mandatory fee (Student Health Fee) is assessed each academic session to all students, and this covers most services offered within the Pickens Health Center, the Infirmary, and Counseling and Psychological Services (see separate listing in this bulletin). More information on covered services is available in the Student Health Program brochure, and in the CAPS brochure. The Student Health Program's health educators can also assist with questions in this and other areas. While the facilities of the Pickens Health Center are available to spouses and dependent children of married students, their care is not covered by the Student Health Fee. Other resources within the Duke University Medical Center are available to all Duke students and their spouses and children, how-

ever charges for these services (including Emergency Room services) are the responsibility of the student.

*The Duke Student Accident and Sickness Policy.* Recognizing that many students will require assistance beyond that offered through the Student Health Service and covered by the Student Health Fee, the University also makes available a plan of accident and sickness insurance at a reasonable charge. This plan is designed to complement services normally not accessible to students through the Student Health Service fee coverage (hospitalization, surgery, emergency room services, specialty consultations, etc.). It covers students both on and off campus, at home, or while traveling between home and school during vacation periods throughout the one year term of the policy. There are provisions in the plan for coverage of the married student's family. A full description of these provisions and other benefits of the Duke Student Accident and Sickness Insurance policy is provided in a brochure sent through the Bursar's office.

All full-time and part-time degree candidate students are required to enroll in the Student Accident and Sickness Insurance Policy unless they show evidence that they are covered by other generally comparable insurance. This evidence of comparable insurance coverage is given by completing the appropriate waiver statement on the remittance form of the University invoice. This statement requires that the name of the insurance company and the policy number be indicated as well as the signature of the student or parent. While the requirement for coverage may be waived by indicating, in writing, willingness to assume the medical costs of any sickness or accident, the Student Health Service strongly recommends that all students be covered by accident and sickness insurance.

**Counseling and Psychological Services.** Counseling and Psychological Services (CAPS) is located in Page Building on West Campus. CAPS is a component of student services which provides a comprehensive range of counseling and developmental services to assist and promote the personal growth of Duke students.

The professional staff is composed of psychologists, clinical social workers, and psychiatrists experienced in working with young adults. They provide direct services to students including evaluation and brief counseling/psychotherapy regarding a wide range of concerns. These include issues of self-esteem and identity, family relationships, academic performance, dating, intimacy, and sexual concerns. Ordinarily students are seen for counseling by appointment. If your concern requires immediate attention, a CAPS staff member will assist you with the emergency at the earliest possible time.

Each year CAPS offers a series of self-development seminars and support groups. These explore such interests as stress management, career planning, and management of eating disorders. A special support group for graduate and professional school women is offered most semesters. Interested students may contact CAPS for further information.

Another function of CAPS is to provide consultation regarding student development and mental health issues affecting not only individual students but the campus community as a whole. The staff works with other campus personnel including administrators, faculty, the student health staff, and student groups in meeting needs identified through such liaisons. Staff members are available to lead workshops and discussion groups on topics of interest to students.

## Student and Professional Organizations

**Alpha Omega Alpha.** Alpha Omega Alpha Honorary Medical Fraternity was founded in 1902 and the Duke University chapter, Alpha of North Carolina, was chartered in 1931. The society works to promote scholarship and research in medical schools as well as high standards of character and comportment toward patients among students and physicians. AOA elects to its membership students who have exhibited academic promise, clinical excellence, and leadership. Membership is limited to one sixth of each graduating class, and up to half of these may be elected in the junior year. AOA membership

is also conferred upon physicians, including alumni and faculty members, who have distinguished themselves in research, teaching, and practice.

Duke University Chapter Councillor: Madison S. Spach, M.D.

Councillor-Elect/Secretary-Treasurer: Salvatore V. Pizzo, M.D., Ph.D.

President: Mark W. Swaim

Vice President: Charles Michael LeCroy

**Davison Society.** All medical students are dues-paying members of the Davison Society, named for the first Dean of Duke Medical School. The society is governed by the Davison Council which consists of elected officers (President, Service Vice-President, Social Vice-President, Secretary, Treasurer, and Intramural Sports Chairman) and elected representatives from each class. Primary responsibilities of the council include: chartering of medical student groups, budgeting funds for student groups and medical school activities, organization of medical school activities and social events, appointment of medical students to Medical Center and University committees, and representing student views to the pertinent faculty and administration.

Medical student groups affiliated with, and in the past funded by the Davison Society include: the American Medical Student Association, the North Carolina Student Rural Health Coalition, the North Carolina Medical Society Student Chapter, the Student National Medical Association, Durham City Schools Seventh Grade Sex Education Program, and the East End Health Clinic.

Meetings of the council are open to all students and minutes of council meetings are posted. The members of the council are elected in the spring of each year except for the first year class representatives who are elected during the first fall after matriculation.

**The Engel Society.** The Engel Society, established in 1966 as a memorial to Professor Frank L. Engel, is designed to promote intellectual and social interaction between students and faculty. Membership is limited to six junior students and six senior students who have demonstrated an inquisitive nature, humanitarian interests, and high scholastic ability. Four faculty members are selected annually by members of the society for three year terms. Six dinner meetings with guest speakers are held each year. Other students may be invited to participate.

**Duke University Medical Alumni Association.** The Duke Medical Alumni Association consists of nearly 8,000 members including all graduates of the Medical School, past and present faculty, and all past and present house officers of Duke Hospital. A magazine is sent to all members three times annually. November reunions are held each year in Durham. Alumni groups meet in several states and meetings are held in conjunction with the meetings of the American College of Physicians, the Southern Medical Association, the North Carolina Medical Society, and several departmental specialty society meetings. Several social functions for medical students are sponsored annually, as is a student seminar. The Medical Alumni Association also maintains a listing of alumni willing to host students in their local area. One of the more popular programs is the Student Candy Jar.

*Officers.* President: Julian C. Lentz, Jr., M.D. 1942, Fayetteville, North Carolina; Secretary-Treasurer: Jay M. Arena, M.D. 1932, Durham, North Carolina; R. C. "Bucky" Waters, Associate Vice-President for Health Affairs-Alumni and Development; Patricia M. Ashmore, Director, Medical Alumni Development and Programs.

## Awards and Prizes

**Davison Scholarship.** The Davison Scholarship award, consisting of \$2,000, is supported by the Davison Club in the memory of Dean Davison to enable a medical student to participate in a clinical science elective outside the United States in an area of primary care. Any student eligible to study away may apply for the award. For consideration for the scholarship, the elective must be approved by the Study Away Committee.

**Thomas Jefferson Award.** This award, consisting of \$100, a certificate, and a book recognizes a graduating senior student who has made outstanding contributions to the University or to fields which have not been traditionally confined to science and medicine. The award is given by the Awards Committee to a graduating senior.

**The Joseph Eldridge Markee Memorial Award in Anatomy.** This award, donated by the friends and family of the late Dr. J. E. Markee, James B. Duke Professor of Anatomy and Chairman of the Department of Anatomy from 1943 to 1966, consists of a certificate, medallion, and cash award of \$200. It is presented by the Department of Anatomy to the most outstanding student in anatomy during the first year in the Medical School.

**C. V. Mosby Book Award.** Three graduating senior students are selected by the Awards Committee for active participation in service to the students, community, and medical school. The award is a Mosby book of the student's selection.

**Trent Prize.** An annual award of \$100 is given to a Duke medical student for the best essay on any topic in the history of medicine and allied sciences. Mary Trent Semans established this award in memory of the late Josiah C. Trent to encourage students to undertake independent work in the history of medicine and to utilize the resources of the Trent Collection.

**Upjohn Award.** The award consists of \$200 cash and a certificate and is presented to a Duke graduating senior for excellence in community health science projects and service to the community.

**Sandoz Award.** This award is given to a senior student who has done distinguished work in basic science research or clinical research. Students will be nominated for this award by departmental chairmen with whom their work has been done. The work must have been presented at the AOA symposium and voted upon by the Awards Committee. It consists of a plaque and a check for \$100 and is limited to one student.

**Ciba Award.** This award is given to a third year student who has contributed to the health care of the community. Students are nominated by the student body and voted upon by them. The award consists of the complete set of medical illustrations and text by Frank Netter.

**Other Awards.** Throughout the year, Duke Medical School receives notification of awards consisting of books, money, and/or plaques or medals to be awarded to students in a variety of fields at all medical schools on a national competitive basis selected by committees of the sponsoring organizations. These awards are screened by the Dean's office and publicized appropriately.





*Admissions*



## Admission Procedures

Good study habits, intelligence, character, and integrity are essential qualifications for admission. Beyond this, premedical students should strive for an education that develops abilities to observe critically, think analytically, and work independently. Though a knowledge of basic scientific principles should be secured, the competence with which premedical students conduct their undergraduate careers is of more importance than the specific subjects which they study.

**Application for Admission.** The Duke University School of Medicine participates in the American Medical College Application Service (AMCAS). Application materials may be obtained from a premedical adviser or by writing: American Medical College Application Service, Association of American Medical Colleges, Suite 301, 1776 Massachusetts Avenue, N.W., Washington, DC 20036.

Upon receipt of the application materials from AMCAS, if credentials indicate, a supplemental application and other information will be mailed which will serve as notification of receipt of the application from AMCAS. Applications are received by AMCAS any time after June 15 until November 1. Applicants are urged to file their applications as early as possible. The deadline for receipt of the supplemental application is 15 December.

Upon receipt of the supplemental application, two faculty members will determine whether or not to proceed with an interview.

**Requirements.** Admission to the School of Medicine requires a minimum of ninety hours of approved college credit including one year of college English (consisting primarily of expository English composition), one year of inorganic chemistry, one year of organic chemistry, one year of physics, one year of biology and/or zoology, and one year of calculus. An introductory course in biochemistry during the senior year would be helpful. All science requirements must be completed not more than seven years prior to entrance.

The Medical College Admission Test, administered by the American College Testing Programs and Services, P.O. Box 414, Iowa City, Iowa 52240, is required of all applicants. This test is given in April and September of each year at numerous colleges throughout the United States.

Students should consult their premedical advisers and arrange to take this test in April of the year they plan to submit applications for admission.

## Selection

The earliest date of notification of acceptance is 1 November for students entering the following August. Data on each candidate are carefully evaluated by the Committee on Admissions. A personal interview will be conducted at Duke for those students with satisfactory credentials. Candidates may have personal interviews with regional representatives of the Admissions Committee. Those candidates who demonstrate the most promise for exceptional performance in their future practice of medicine are admitted on the basis of merit and are notified as soon as possible whether or not they have been accepted. In order to ensure enrollment, accepted candidates must return a signed agreement and a \$50 deposit within three weeks after notification. Since admission is offered a considerable period in advance of matriculation, it is provisional upon the successful completion of any incomplete premedical required subjects as well as the continued demonstration of scholarship in college course work.

## Transfer

Duke University School of Medicine does not accept transfer students except in unusual circumstances.



## Advanced Placement

Advanced placement is offered to qualified first-year students on an optional basis for the following first semester courses: anatomy, biochemistry, genetics, and physiology. Students desiring consideration for advanced placement are required to take examinations in applicable subjects during the first week of medical school. Those who are granted and accept advanced placement for a specific course are not required to enroll in that course but will be responsible for arranging mutually satisfactory substitutions with the appropriate department chairman.

Students who have been awarded Ph.D. degrees in biomedical or preclinical sciences may apply for a three-year program to obtain their M.D. degrees. This program consists of the regular core basic science courses required of all freshman medical students, core clinical rotations during the second year, followed by senior clinical electives.

## Reapplication

Students who wish to apply for a second time should write AMCAS requesting new application forms. Supporting documents will be transferred to the new application file. These documents will be kept on file for three years.



## Summary

Three years of college work, fifty dollars (\$50) nonrefundable application fee, fifty dollar (\$50) deposit within three weeks of notification of acceptance, and the Medical College Admission Test are required. The estimated class size in 1989-90 freshman class is 100.

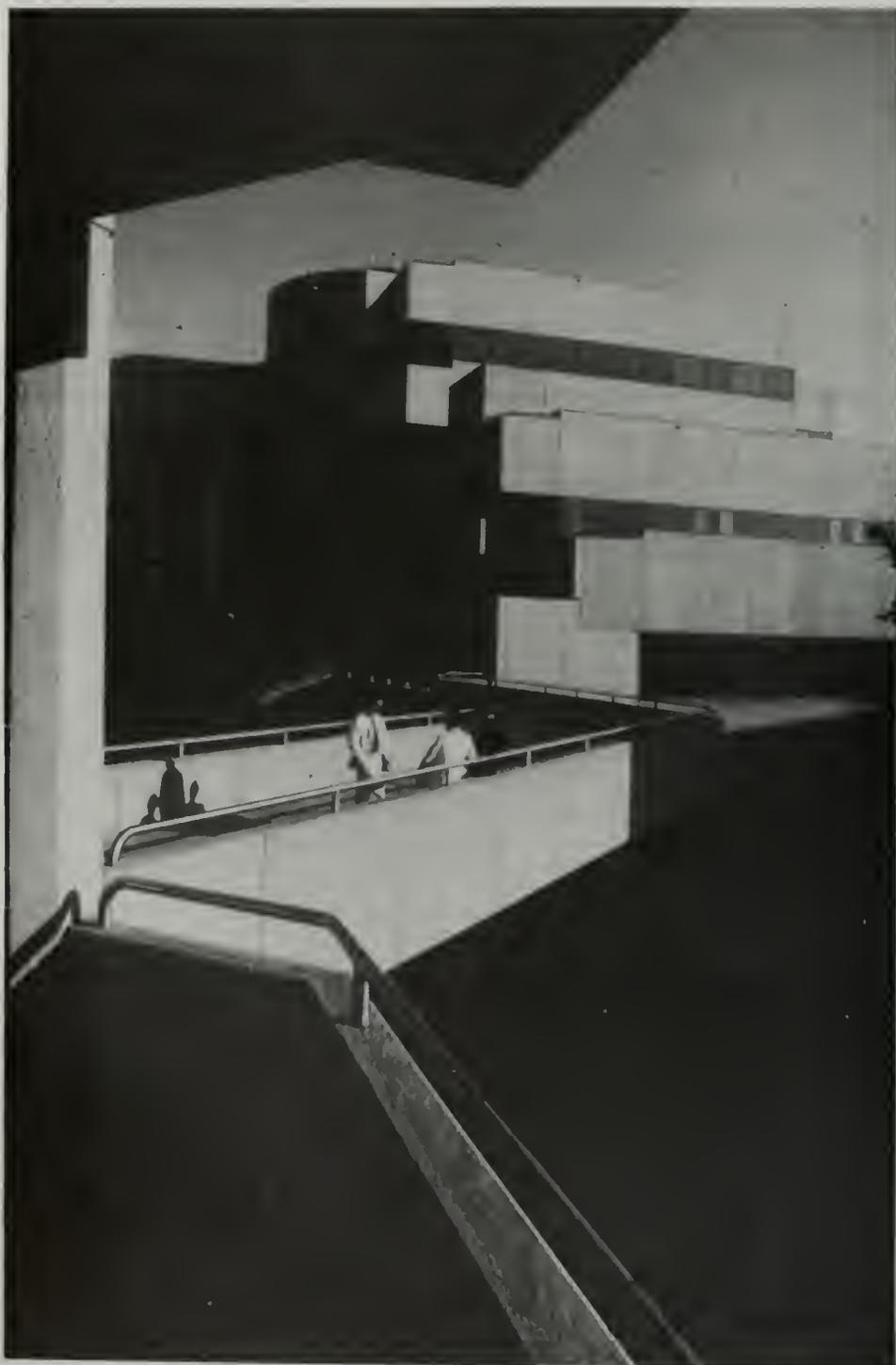
### Roster of Regional Representatives of Admissions Committee

Alabama:	<i>Birmingham</i> , Ben V. Branscomb; <i>Tuskegee</i> , Alexander W. Boone, Jr.
Alaska:	<i>Anchor Point</i> , Milo H. Fritz; <i>Sitka</i> , J. Paul Lunas
Arizona:	<i>Phoenix</i> , Robert H. Barnes; <i>Scottsdale</i> , Boyd H. Metcalf; <i>Tucson</i> , Ruth H. Capp
Arkansas:	<i>Little Rock</i> , Rosalind Smith Abernathy, E. Clinton Texter, Jr.
Australia:	Susan Lodewijks
Belgium:	<i>Liege</i> , Emile F. LeClercq
California:	<i>Bakersfield</i> , Victor S. Constantine; <i>Berkeley</i> , Bruce Africa; <i>Beverly Hills</i> , Ben Kohn; <i>Burlingame</i> , J. M. Javer, Andrew Nadell; <i>Fairfield</i> , William R. Nesbitt; <i>Fontana</i> , Henry L. Burks; <i>Irvine</i> , A. Brian Davis; <i>La Jolla</i> , Herman M. Froeb; <i>Los Angeles</i> , Walter Lusk, Kenneth P. Rammung, Douglas F. Smiley; <i>Norwalk</i> , Garrett F. Saikley; <i>Orange</i> , George Hayter; <i>Palo Alto</i> , Gustave Freeman, James B. Golden, John B. Simpson; <i>Redlands</i> , Perry Dyke; <i>Riverside</i> , James S. Mayson; <i>San Diego</i> , Donald J. Williams; <i>San Francisco</i> , David S. Forth, R. Gray Patton, George W. Rutherford, Henry Safrit
Colorado:	<i>Colorado Springs</i> , John P. Tindall; <i>Denver</i> , Michael J. Jobin, Fred W. Schoonmaker, Charles Scoggin; <i>Englewood</i> , Frederick V. Coville, Bertram Goldberg
Connecticut:	<i>Branford</i> , Ned Shutkin; <i>Greenwich</i> , Milton F. Campbell; <i>Hartford</i> , William H. Glass; <i>New Haven</i> , G. P. Beardsley, David J. Goodkind; <i>Ridgefield</i> , George Margolis; <i>Waterford</i> , Henry B. Freye
District of Columbia:	Mona M. Shangold
England:	<i>Lakenheath</i> , Martha Ann McKnight
Florida:	<i>Dunedin</i> , Cathy Suslevich; <i>Hallandale</i> , Norman Moskowitz; <i>Jacksonville</i> , J. David Cahill; <i>Miami</i> , Stanley J. Cannon, James J. Hutson; <i>St. Petersburg</i> , David S. Hubbell; <i>South Miami</i> , Leonard A. Kalman; <i>Tampa</i> , Richard G. Connor, Americo A. Gonzalvo
Georgia:	<i>Atlanta</i> , R. Wayne Alexander, Crawford F. Barnett, Jr.
Hawaiï:	<i>Honolulu</i> , James G. Harrison; <i>Kailua</i> , Stanley Karansky; <i>Kealahou</i> , Thomas E. Austin
Idaho:	<i>Idaho Falls</i> , Reid H. Anderson
Illinois:	<i>Barrington</i> , George Pepper; <i>Chicago</i> , John H. Buehler, George H. Gardner, Daniel J. Pachman, John D. Utley, Milton Weinberg, Jr.; <i>Geneva</i> , Charles A. Hanson; <i>Monmouth</i> , Kenneth E. Ambrose; <i>Northbrook</i> , Donald R. Mundie; <i>Park Ridge</i> , Earl N. Solon
Indiana:	<i>Indianapolis</i> , Mark O. Farber, C. Conrad Johnston, Jr.
Kansas:	<i>Emporia</i> , Gould C. Garcia; <i>Lenexa</i> , David L. Smith
Kentucky:	<i>Louisville</i> , Billy Franklin Andrews, George I. Uhde
Louisiana:	<i>New Orleans</i> , Nancy Haslett, Richard M. Paddison
Maryland:	<i>Baltimore</i> , John Modlin; <i>Mt. Rainier</i> , Linda D. Green; <i>Olney</i> , Joseph Buffington
Massachusetts:	<i>Boston</i> , Ann W. Crosson, Richard J. Kopelman, Britain Nicholson, Ellison C. Pierce, Jr., Stephen Sohn; <i>Cambridge</i> , Paul N. Chervin; <i>Hyannis</i> , Linda A. Bishop; <i>Newton Centre</i> , Bernard Levy; <i>Stoughton</i> , Philip A. Hourigan, Jr.; <i>Worcester</i> , Katherine S. Upchurch
Michigan:	<i>Detroit</i> , John J. Fath; <i>Grosse Pointe</i> , John M. Lesesne
Minnesota:	<i>Fairmont</i> , Lawrence T. Donovan; <i>Minneapolis</i> , James A. Halikas, Martin M. Oken, Richard L. Reece; <i>Rochester</i> , William Hazel, William M. O'Fallon
Missouri:	<i>Bridgeton</i> , Thomas J. Banton, Jr.; <i>Creve Couer</i> , Roman L. Patrick; <i>Kansas City</i> , Gerry Woods; <i>Springfield</i> , Norman C. Shealy; <i>St. Louis</i> , W. Edwin Dodson
Nebraska:	<i>Omaha</i> , Helen Starke
New Hampshire:	<i>Cornish</i> , William T. Davison; <i>Exeter</i> , Eric D. Lister
New Jersey:	<i>Livingston</i> , Stephen J. Victor; <i>Moorestown</i> , Michael S. Entmacher; <i>Morristown</i> , Philip K. Keats; <i>Paterson</i> , Linda F. Rankin; <i>Pompton Plains</i> , Charles W. Ross; <i>Summit</i> , Wayne S. Barber; <i>Watchung</i> , R. Christopher Stucky
New York:	<i>Endicott</i> , Vincent Giordano; <i>Ithaca</i> , John G. Maines; <i>New York</i> , Joan S. Adams, Michael Brownlee, Carl H. Fromer, David S. Goldman, Bruce Horten, Lenard E. Jacobson, Seymour R. Kaplan, Michael J. Lepore, Phyllis C. Leppert, Robert A. Shimm, David N. Silvers, Nathan St. Amand, Melvin L. Thrash; <i>Pittsford</i> , Rufus S. Bynum; <i>Rochester</i> , David N. Broadbent, Martin Morse; <i>Syracuse</i> , L. Stewart Massad; <i>White Plains</i> , Harvey J. Cohen
North Dakota:	<i>Bismarck</i> , Robert B. Tudor
Ohio:	<i>Canton</i> , John A. Nadas; <i>Cincinnati</i> , Donald Rucknagel, Murray B. Sheldon, Jr.; <i>Cleveland</i> , Stephen E. Alpert; <i>Columbus</i> , Lucy R. Freedy, James V. Warren; <i>Elyria</i> , William L. Hassler; <i>Toledo</i> , George F. Alter

Oklahoma: *Muskogee*, Robert H. Gibbs  
Oregon: *Portland*, Marcia Freed, Martin S. Schwartz  
Pennsylvania: *Bryn Mawr*, John V. Blady; *Camp Hill*, Alfred J. Sherman; *Dunmore*, Louis C. Waller; *Johnstown*, W. Frederick Mayer; *Lancaster*, Richard D. Gentzler; *Philadelphia*, Mary Ann Forciea, John J. Furth, David M. Goodner, James R. Harp, Richard I. Katz, Sheila M. Katz, Mildred H. LaFontaine, Dianne M. Quinn, Graham E. Quinn, Alfred M. Sellers; *Pittsburgh*, Richard L. Green, Jack D. Myers; *State College*, Richard H. Dixon, Donald F. Mandetta; *Wynnewood*, Frank Kern  
Puerto Rico: *Santurce*, Rafael Hernandez-Saldana  
Rhode Island: *Lincoln*, Henry G. Magendantz; *Providence*, Benjamin T. Jackson  
South Carolina: *Charleston*, Edward Frost Parker; *Columbia*, Collin F. Baker, Ben N. Miller, James M. Timmons; *Greenville*, Raymond C. Ramage  
South Dakota: *Sioux Falls*, Charles Beauchamp  
Tennessee: *Chattanooga*, Roger G. Vieth; *Knoxville*, Alan Solomon; *Memphis*, Peter D. Jones; *Nashville*, Alexander C. McLeod  
Texas: *Amarillo*, Gayle H. Bickers; *Austin*, Frank A. Morris, Jr.; *Dallas*, Reuben H. Adams, W. Crockett Cheers, Jr., William Shapiro; *Fort Sam Houston*, Hugh J. Donohue, Jr.; *Fort Worth*, Alan D. Davis; *Galveston*, J. Andrew Grant, Jr.; *Houston*, Kenneth Gould, Jr., Barry N. Hyman, Eugenie Kleinerman, H. Grant Taylor, Leonard A. Zwelling; *Lubbock*, George E. Bacon; *San Antonio*, Frederick L. Grover  
Utah: *Salt Lake City*, N. Branson Call, Andrew Deiss, William A. Gay, Jr.  
Vermont: *Burlington*, Edward S. Horton  
Virginia: *Richmond*, R. Lewis Wright; *Waynesboro*, Thomas L. Gorsuch  
Washington: *Bothell*, Ronald C. Reed; *Kirkland*, David T. Pitkethly; *Longview*, Clifford J. Schostal; *Renton*, Wallace H. J. Chang; *Seattle*, Gregory J. Raugi; *Spokane*, Charles L. Dorsey  
West Virginia: *Wheeling*, David P. Hill  
Wisconsin: *Milwaukee*, Jack L. Teasley  
Wyoming: *Jackson*, John A. Feagin *Sheridan*, James L. Scott

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*Financial Information*





## Fees and Expenses

**Tuition.** The following table represents an estimate of a student's necessary expenses in the School of Medicine. The total of these figures suggests a basic minimum budget of approximately \$20,000. These are estimated figures only and are based on a survey of enrolled students. Tuition and fees are subject to change without notice. Allowances for recreation, travel, clothing, and other miscellaneous items must be added to this estimate with allowances for individual needs and tastes.

Tuition	\$13,100
Accident and Sickness Insurance (subject to change)	245.00
First Year Fee (includes microscope rental, first year only)*	275.00
Annual Cost of Books: first year	725.00
Annual Cost of Books: second year	735.00
Annual Cost of Books: third and fourth year	200.00
Lodging	3,038.00
Board: first year	2,500.00
Board: second year	3,200.00
Board: third and fourth year	2,000.00
Student Health Service +	298.00
Student Government (Davison Society)	50.00
Activity fee	25.00
Motor Vehicle Registration	50.00

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\*Sphygmomanometer, ophthalmoscope, otoscope, and other equipment required of each student must conform to rigid standards.

+ Mandatory fee. For details, please refer to Student Health Service.

Tuition and fees are payable on a semester basis and all students are required to pay full tuition for four years as a requirement for graduation. For the freshman year one-half of the annual tuition and fees is billed in July and the other one-half in December. Students who must repeat 60 percent or more of the required first year courses will pay full tuition while prorated tuition will be paid by those repeating less than 60 percent of those courses. Second year students are billed at the rate of one-seventh of the annual tuition and fees for the Introduction to Clinical Diagnosis and each eight-week rotation and one-fourteenth of the annual tuition and fees for each four-week rotation. Juniors and seniors are billed in accordance with the number of elective credits for which they are registered. The cost per credit equals the annual tuition divided by the number of credits required per year.

**Payment of Accounts for Fall and Spring.** Monthly invoices for tuition, fees, and other charges will be sent by the Bursar's office and are payable upon receipt but no later than the late payment date. As a part of the agreement of admission to Duke University a student is required to pay all invoices as presented. No deferred payment plans are available. If full payment is not received by the late payment date, a late payment charge as described below will be assessed on the next invoice and certain restrictions as stated below will be applied. Failure to receive an invoice does not warrant exemption from the payment of tuition and fees nor from the penalties and restrictions. Nonregistered students will be required to make payment at the time of registration for tuition and fees and any past due balance on the account.

**Late Payment Charge.** If the "Total Amount Due" on an invoice is not received by the late payment date, the next invoice will reflect a penalty charge of 1% percent per month assessed on the past due balance regardless of the number of days past due. The "Past Due Balance" is defined as the previous balance less any payments and credits received on or before the late payment date and also any student loan memo credits related to the previous balance which appear on the invoice. The amount of the 1% percent penalty charge will be the same regardless of the number of days payment is received after the late payment date.

**Restrictions.** An individual will be in default of this agreement if the total amount due on the student invoice is not paid in full by the invoice late payment date. An individual who is in default will not be allowed to register for classes, receive a transcript of academic records, have academic credits certified, be granted a leave of absence or receive a diploma at graduation. In addition, an individual in default may be subject to withdrawal from school.

No credit will be given for any term in which the tuition has not been paid, whether the work has been at Duke or elsewhere. It is not advisable for students to attempt outside work to defray their expenses during the academic year. Spouses of medical students desiring employment may secure information from the Duke University Personnel Office.

**Fall and Spring Refunds.** Tuition and fees refunds are governed by the following policy:

1. In the event of death a full tuition and fees refund will be granted.
2. In all other cases of withdrawal or leaves of absence, students or their parents may elect to have tuition refunded or carried forward as a credit for later study according to the following schedule:
  - a. withdrawal before the beginning of classes—full refund;
  - b. withdrawal during the first or second week—80 percent;
  - c. withdrawal during the third through fifth week—60 percent;
  - d. withdrawal during the sixth week—20 percent;
  - e. withdrawal after the sixth week—no refund;
  - f. tuition charges paid from grants or loans will be restored to those funds on the same pro rata basis and will not be refunded or carried forward.
3. In the case of changing category from full-time to part-time, dropping special fee courses (music, art, golf, etc.), or dropping audit courses, a full refund will be granted during the drop/add period. Subsequent to the drop/add period changes of category will not be allowed. Students may, however, withdraw from courses after the drop/add period with no refund or add new courses if the proper tuition is paid.

**Transcripts.** Requests for transcripts of academic records should be directed to the Office of the Medical Center Registrar. A minimum fee of two dollars, payable in advance, is charged for each copy.

## Living Accommodations

**Housing Costs.** For the 1988-89 academic year, rental rates for the first-year medical student were \$2,525 for the Town House apartments and \$2,220 for the Modular Homes. Utility charges are not included in these rates.

Rental rates in Central Campus Apartments ranged from \$2,535 to \$3,913 for single first-year medical students. Utility charges are included in the Central Campus Apartment rates. These rates are per person per academic year.

Rental rates are expected to increase for the 1989-90 academic year. A deposit is required with all applications. The deposit will not be refunded if cancellation is received after an assignment is made.

Refunds of rent will be calculated in accordance with the procedures published by the Department of Housing Management.

**Food and Other Expenses.** Duke University Food Services and Duke University Store operations are located on campus to service the needs of the Duke community. For the convenience of students, the University Identification card, called The Duke Card, can be used to access prepaid accounts and make purchases in these facilities.

There are two kinds of accounts: the dining account, which can be used for food purchases only, and the flexible spending account, which can be used to purchase not only food, but any items sold by Duke stores, such as books, supplies, laundry services, health and beauty aids, and more. These campus retail operations also accept cash.

For more information about establishing an account, contact the Auxiliary Services Contract Office, 024 Union West, Duke University, Durham, North Carolina 27706 919/684-5800.

## Motor Vehicle Registration

Each motor vehicle operated on Duke University campuses by students enrolled in the School of Medicine must be registered at the Medical Center Traffic Office, PRT Level, Parking Deck II, within five days after operation on the campus begins, and thereafter must display the proper registration decal.

All students must pay an annual fee of \$50 for each four-wheeled motor vehicle and \$25 for each motorbike or motor scooter registered. Bicycles are registered free of charge at the Public Safety Department, 2010 Campus Drive.

To register a vehicle, the student must present a valid state registration for each vehicle registered and a valid state operator's license.

Parking, traffic, and safety regulations will be given each student at the time of registration of the vehicle(s). Students are expected to abide by these regulations.

## Merit Scholarships for Medical Students

The School of Medicine offers awards from the following scholarships, ranging from \$5,000 to full four-year tuition and other costs, based solely on academic excellence:

*William G. Anlyan, M.D. Scholarship*, established 1988 by gifts from faculty, staff and friends.

*Barham Endowed Merit Scholarship*, established November, 1984, by gift from Mr. and Mrs. Joseph Barham, Oak Ridge, Louisiana.

*Edward H. Benenson Merit Scholarship*, established October, 1984, by gift from Mr. Edward H. Benenson, New York.

*Clinical Faculty Merit Scholarship*, established November, 1985, by clinical faculty.

*Family Dollar Scholarship*, established November, 1984, by gift from Mr. Leon Levine, Chairman of the Board, Family Dollar Stores, Inc., Charlotte, North Carolina; for minority students.

*Dr. William Redin Kirk Memorial Trust for North Carolinians*, established March, 1984, by bequest of Mr. Frederick H. Pierce, Owensboro, Kentucky.

*Mary W. and Foster G. McGaw Scholarship*, established June, 1986, by bequest from Foster G. McGaw.

*Medical Faculty Wives Merit Scholarship*, established August, 1985, by medical faculty wives.

*Dr. Kenneth L. Pickrell Scholarship*, established February, 1984, by gift from the Department of Surgery, Duke University Medical Center.

*Department of Psychiatry Merit Scholarship*, established November, 1985, by the Department of Psychiatry, Duke University Medical Center.

*Department of Radiology Merit Scholarship*, established September, 1985, by the Department of Radiology, Duke University Medical Center.

*Robert Wood Johnson Foundation Student Aid Program* for minority students.

*School of Medicine Merit Scholarship Fund*, established 1984 by gifts from medical alumni, students, and American Medical Association-Education and Research Foundation.

The Merit Scholarship Selection Committee makes final selections from nominees chosen by the Medical School Admissions Office. Candidates may be notified as early as January or February of final selection and alternate status. Annual renewal is contingent upon satisfactory academic progress.

Financial need is not a criteria for selection; however, applicants who feel their financial need is greater than the merit award may apply for financial aid.

**The Dean's Tuition Scholarships.** Seven Dean's Tuition Scholarships in the amount of current tuition are given to academically excellent freshmen minority students each year. Preference is given to residents of North Carolina. Selection is made by the Dean based on recommendations from the Medical School Admissions Office. Annual renewal is contingent upon satisfactory academic progress.



## Medical Student Research Scholarships

Several groups now sponsor medical student research scholarships. Some have delegated the responsibility to the medical school to select participants in the program, others have their own independent selection processes. In most of the scholarship programs, students selected for scholarships are eligible to receive up to thirty-six basic science credits for the experience. A full twelve-month research experience is required to qualify for all thirty-six credits. Selection for the following awards is made by the Student Research Scholarship Committee.

*Eugene A. Stead Student Research Scholarship Program.* This program is sponsored by the Duke Department of Medicine in honor of Eugene A. Stead, Jr., M.D., Chairman of the Department of Medicine from 1947 until 1967. Three students are selected each year as General Stead Scholars and three others will be selected during 1988-89 as Stead Scholars in special areas as indicated below. Two of the General Stead Scholarships are supported by endowments from individual patients of Dr. James Clapp—Jay D. and Lorraine Nicewonder and the Loo Cheng Ghee family. The third general scholarship is supported by an endowment by those at Duke and elsewhere who were trained in Internal Medicine by Dr. Stead. The Robert T. and Virginia McDaniel-Stead Scholarship is an endowed scholarship intended to support basic cardiovascular research. The McDaniels are patients of Dr. Andrew Wallace. The Hartford-Stead Scholarship encourages the pursuit of careers in geriatrics and will be awarded to a student with a research proposal and career goals relating to the health of elderly. The Infectious Diseases-Stead Scholarship supports research in laboratories within the Division of Infectious Diseases including bacteriology, parasitology, virology, mycology and immunology.

*Four School Physician Scientist Program in Internal Medicine.* The Departments of Medicine of Duke University, Johns Hopkins University, University of Pennsylvania and Washington University in St. Louis have begun a special program designed to promote the development of medical scientists. Provision will be made for two students from each school to be selected to spend one year in research while in medical school, two years in residency in internal medicine, and two years of postdoctoral training in research at one or more of the participating institutions. Financial support will be provided for both the research and clinical components of this program.

*The Cassell-Saperstein Scholarship Endowment Fund.* This fund, provided by the Cassell-Saperstein family, funds an annual scholarship to a student involved in any basic research area in the medical sciences.

*International Health Student Fellowship Program.* An opportunity will be offered for one or two third-year students to undertake an epidemiologic research project in Costa Rica. Supervision will be provided by: (1) one of the professional staff at the Institute for Health Studies (INISA) within the University of Costa Rica; (2) Dr. William Wilkinson, Director of the Biometry and Medical Informatics Study Program; and (3) Dr. David Durack, Director of the Division of Infectious Diseases and International Health. Costa Rica is a small, politically stable Central American country with good health care facilities. INISA is an established research institute with a strong record of publications in epidemiology, public health and health care delivery. Various research projects will be available in the fields of health care delivery, child health and development, or microbiology.

*Stanley J. Sarnoff Society of Fellows for Research in Cardiovascular Sciences.* Ten students are chosen nationally for a full twelve-month research experience in the cardiovascular area, away from their parent medical school. Duke has one position in this program. The recipient is awarded \$12,000 for the twelve-month research experience. An additional \$1,500 is available for travel to various laboratories during the selection process. The program is in its tenth year and there is a great deal of esprit de corps within the "Sarnoff Society of Cardiovascular Fellows". Dr. Sarnoff hosts an annual meeting in Bethesda, Maryland, in which the ten fellows engaged in research during that year present their

work, fellows who have completed their research year talk about their developing career plans, and newly selected fellows learn about possible research opportunities.

*The American Heart Association Medical Student Research Fellowship Program.* Duke is one of twenty-five schools selected by the American Heart Association for one of their Student Research Scholarship Programs. Two positions each year are available. These scholarships differ from all others in that the funding organization does not permit the student to receive academic credit while they are American Heart Scholars. Therefore, these scholarships have been used by students who had rewarding experiences during their basic science elective year in cardiovascular research and then chose to add a second dedicated research year before completing their clinical elective years as a Duke medical student. A \$12,000 stipend is awarded each of the American Heart Scholarship recipients.

All students applying to these programs prepare their applications and receive interviews during the second year of medical school. Announcements of the scholarship recipients are made in April.

In addition, there are other foundations which support student research scholarship programs and are approved for Duke University School of Medicine credit but have their own methods for evaluation and selection. Because of the unique nature of the Duke University School of Medicine curriculum, we have been highly successful in having students in the various programs. The Howard Hughes/National Institutes of Health Research Scholars Program and the Pew Foundation/Rockefeller University Program require that the student works in a particular institution away from their parent medical school. The Hughes/NIH program selects thirty students each year to live on the NIH campus and work in one of their basic science laboratories. During 1988-89 five of these positions were occupied by Duke students. The Pew/Rockefeller program selects four students each year to work in laboratories studying various aspects of human nutrition at the Rockefeller University in New York City and this year one of these four is a Duke student. We have also been very successful in having our students in scholarship programs supported by the Arthritis Foundation, the Pharmaceutical Manufacturers Foundation, and the Fight for Sight Foundation. During 1988-89 the Howard Hughes Medical Institute initiated a new research training program which permits the students to work in any laboratory of their choice including those at their parent school. Sixty of these will be awarded and again we anticipate a high success rate among Duke students.

During the 1988-89 academic year fifteen of one hundred students in the third year class received scholarships for research training in their basic science elective year.

## Financial Aid

The Duke University School of Medicine makes financial assistance available to accepted students who, due to economic circumstances, could not otherwise attend the University. The school recognizes, however the responsibility of the individual and the family to provide funds to achieve the objective of a medical education. Thus, the school does not consider that parents have discharged the full financial obligation for the continuing education of their sons or daughters upon the latter's completion of the undergraduate degree.

Financial assistance is available in a combined form of grants and loans, and all awards are made on the basis of demonstrated need.

**Financial Assistance to Incoming Freshmen.** A financial aid application packet is routinely mailed by early January to each applicant who has been scheduled for a medical school interview. This mailing is without regard to whether the applicant expressed an interest in assistance on the application for admission. The economic circumstances of the applicant have no bearing on whether the applicant is accepted into the medical school.

The applicant requesting financial aid is expected to work during the summer preceding entrance into medical school and to save part of those earnings to defray a portion of the first-year expenses.

The applicant's need must be established before an award can be made. The Office of Financial Aid, therefore, requires the Duke University Medical Center application for financial aid and computations from the GAPSFAS form. Copies of federal income tax returns with supplemental schedules and a financial aid transcript are also required as part of the financial aid application.

An official aid award notice is sent to the accepted applicant within a few days after receipt of the required forms. Awards are conditional until all required documents are received.

The present financial aid package, which is subject to change, for qualified North Carolinians (those who meet state residency law prior to matriculation) is based on a tuition grant up to \$10,000. Financial need in excess of \$10,000 must come next from a \$5,000 Stafford student loan (formerly GSL), and need in excess of \$5,000 comes from one-half school grant and one-half Stafford student loan up to \$2,500, then Duke loan.

The present financial aid package, which is subject to change, for qualified students from outside North Carolina is based on a \$5,000 Stafford student loan. Financial need in excess of \$5,000 comes from one-half school grant and one-half from Stafford student loan up to \$2,500, then Duke loan.

**Financial Assistance to Upperclassmen.** Annual reapplication is required of all need based aid recipients. Upperclassmen seeking financial assistance for the first time may consult with the Administrator of Financial Aid.

#### **Duke University Medical Center Endowed Funds.**

Charles W. Banner Loan Fund, established in 1953 by a gift from Mrs. Edward B. Benjamin.

Germain Bernard Scholarship, established in 1959 by the B. C. Remedy Company.

Thomas C. Bost Scholarship, established in 1965 by a gift from Dr. Thomas C. Bost, supplemented by subsequent gifts.

Elizabeth Burgess Bressler Memorial Scholarship Fund, established in 1983 by her children: Garrett S. Bressler, M.D.; Robert B. Bressler, M.D.; Barbara B. Marques; Peter B. Bressler, M.D.

James L. Clark Memorial Scholarship, established in 1965 by a gift from Mr. and Mrs. Marvin D. Clark and supplemented by gifts from other donors.

C. T. Council Scholarship, established in 1959 by the B. C. Remedy Company.

John H. Dorminy Scholarship, established in 1980 by gift from John H. Dorminy, Jr.

Herbert T. Dukes, M.D. Memorial Loan Fund, established in 1983 by his classmates and friends.

Eagles-Andrews Memorial Scholarship, established in 1982 by a gift from Dr. and Mrs. William M. Eagles.

William F. Franck Memorial Scholarship, established in 1958 by gift from William F. Franck, Jr. '39, and supplemented by additional gifts.

Constance I. Gottwald Medical Scholarship, established 1987 with preference for minority students by gift from Constance I. Gottwald.

Joseph W. Greer Scholarship, established in 1980 by gift from Mr. and Mrs. Joseph H. Greer.

Hazel Endowment Fund, established 1984 by gift from Mr. and Mrs. William A. Hazel.  
Warren W. Hobbie Fund, established in 1980 by trustees of the Warren W. Hobbie Charitable Trust.

Earl P. Holt, Jr. Memorial Scholarship, established 1986 by gift from family and friends for first or second year medical students with preference given to minority students.

George Lee Hundley and Rebecca Barnhill Hundley Fund, established in 1980 by gift from George Lee and Rebecca Barnhill Hundley.

H. B. and Adelaide F. Ingle Medical Scholarship, established in 1976 by gift from Mr. and Mrs. Harry B. Ingle.

B. Everett Jordan Scholarship, established in 1974 by the late Senator B. Everett Jordan and his widow, Katherine Jordan.

Thomas D. Kinney, M.D. Memorial Scholarship, established in 1980 by gifts from his widow, Dr. Eleanor R. Kinney, and their children: Thomas R. Kinney, M.D.; Eleanor D. Kinney, J.D.; Hannah C. Kinney, M.D.; and Janet S. Kinney, M.D.

Dr. John Haden Lane Memorial Scholarship, established in 1968 by gift from Edward H. Lane Foundation.

E. C. Langston Medical Scholarship, established in 1979 by bequest of Mrs. Denzil L. Mosteller.

Paul E. Leviton Medical Scholarship, established in 1981 from the estate of Paul E. Leviton.

James Cecil McGehee Memorial Medical Scholarship, established in 1975 by gift from C. G. McGehee, Jr.

Medical Alumni Scholarship, established in 1974 by Duke Medical Alumni.

Medical Class of 1950, established in 1980 by gifts from graduates of 1950.

Medical Class of 1981 and AESCULAPIAN/80 Staff, established in 1980.

Medical School Faculty Wives Scholarship, established in 1968 by a gift from the Medical School faculty wives whose source of funds is proceeds from the Nearly New Shoppe.

John F. Ott Endowment Fund, established in 1984 by bequest of John F. Ott, M.D., 1943.

Henry A. Page Scholarship Fund, established 1942 by gift from Henry A. Page, Jr., and Gertrude Wetherill Page.

Physical Medicine Scholarship, established in 1963 by gift from Central Carolina Convalescent Hospital, Inc., Greensboro, North Carolina.

Radiological Science Medical Student Loan Fund, established in 1980 by the Department of Radiology.

Senior Class Gift, established by graduates of classes of 1977 and 1978.

Melvin D. and Judith N. Small Medical School Scholarship Fund was established in 1976 by gift from Dr. Melvin D. and Mrs. Judith N. Small.

Sigmund Sternberger Endowment Fund, established in 1978 by gift from the Sigmund Sternberger Foundation, Inc., Greensboro, North Carolina.

William E. Stevens, Jr. Scholarship, established in 1983 by the Broyhill Foundation, Lenoir, North Carolina.

B. W. Stiles Scholarship, established in 1981 by gift from the Mary Duke Biddle Foundation.

Francis and Elizabeth Swett Scholarship, established in 1966 by gift from the late Dr. and Mrs. Swett.

Harry and Violet H. Turner Scholarship, established 1977 by gift from Drs. Larry and Violet H. Turner.

Dr. Hillory M. Wilder Memorial Scholarship, established in 1962 by bequest from Celeste Wilder Blake and Kenneth M. Blake.

Sue Eggleston Woodward Memorial Scholarship, established in 1966 by gifts from parents, relatives, and friends.

Molly Shaw Zirkle, established 1985 by gift from Lewis G. Zirkle, Jr.

Vivian Zirkle Memorial Scholarship, established in 1981 by gift from Drs. Lewis and Sara Zirkle.

**Other Medical School Scholarships.** Mary Duke Biddle Foundation Scholarships, Dr. E. Eugene Owen Scholarship, Duke University School of Medicine Scholarships, and State of North Carolina (tuition remission up to \$2,000).

**Federal Scholarships.** Armed Forces (Army, Navy, and Air Force) Scholarship programs may be available for accepted or enrolled students. The recipient receives full tuition, fees, and a monthly stipend in return for a commitment of service as a physician for each year of funding. The special application is made directly to the program in which the student is interested.



**Scholarships for Students of Exceptional Financial Need.** This federally funded program provides grant assistance to schools for students who qualify on the basis of federal criteria. Recipients, who are selected by the school, must have zero family resources as measured by a nationally recognized needs analysis.

**Financial Aid for Disadvantaged Health Professions Students (FADHPS).** Recipients for this federally funded grant program are selected by the school on the basis of federal criteria. The student must have zero family resources as measured by a nationally recognized needs analysis.

**North Carolina Board of Governors Medical Scholarships.** Board of Governors Medical Scholarships (BGMS) are awarded annually to twenty first-year medical school candidates who have been accepted for admission at one of the four medical schools in North Carolina. BGMS recipients are selected from among candidates of all races who are financially disadvantaged state residents and who have expressed an interest in practicing medicine in the State of North Carolina. The awards provide a yearly stipend of \$5,000 plus tuition and mandatory fees and may be renewed for four years. Information about the scholarship may be obtained from the financial aid office.

## Loans

University loans are available under the specific restrictions of the loan funds and are awarded on the basis of financial need. Some of them are: W. K. Kellogg Foundation Loan Fund, Seaborn L. Hardman Loan Fund, Medical Freshman Tuition Loan, Scott Loan Fund, Charles W. Banner Loan Fund, Carl Perkins Student Loans, Radiological Science Medical Student Loan Fund, and U. S. Health Professions Student Loans.

The Francis and Elizabeth Swett Loan Fund is an emergency loan available in small amounts to any medical student on a no-interest basis for a short period of time.

## Loans from Outside the University

**North Carolina Student Loan Program for Health, Science and Mathematics.** These loans provide financial assistance to North Carolina residents who demonstrate need as determined by the board. Loans are available for study in the medical fields, mathematics, and science programs that lead to a degree. The applicant must be a domiciliary of North Carolina and accepted as a full-time student in an accredited associate, baccalaureate, master's, or doctoral program leading to a degree. Loan recipients in some professional or allied health programs may cancel their loans through approved service in shortage areas, public institutions, or private practice. Medical students may receive up to \$7,500 per year for each of the four years; master's degree students are eligible for two loans of up to \$5,000 each; bachelor's degree students are eligible for three loans of up to \$4,000 each. For application forms and more information write: Executive Secretary, North Carolina Student Loan Program for Health, Science, and Mathematics, P. O. Box 20549, Raleigh, North Carolina 27605, or telephone 919/733-2164.

**Health Education Assistance Loans.** These need-based loans are available to accepted or enrolled students. There is an annual maximum, and interest, which is higher than the rate for most need-based loans, is not subsidized during enrollment. The special application and more information is available in the financial aid office.

**Stafford Student Loans (formerly GSL).** The need-based Stafford Student Loan is available to eligible students through many home-town banks and/or state agencies. The annual maximum for medical students is \$7,500 with an aggregate maximum of \$54,750. The 8 percent interest is federally subsidized until repayment begins six months after graduation. The interest rate goes to 10 percent beginning with the fifth year of repay-

ment. Medical student borrowers are eligible for a two year deferment of repayment for residency training. A 5 percent loan origination fee on the amount of the loan is required.

Additional information, including a financial aid brochure and approved student budgets, may be obtained by writing Administrator of Financial Aid, Box 3005, Duke University Medical Center, Durham, North Carolina 27710.



*Courses of Instruction*



## Anesthesiology

Professor: W. David Watkins, M.D. (Colorado, 1975), Ph.D. (Michigan, 1971), *Chairman*.

Professors: Peter B. Bennett, Ph.D., D.Sc. (Southampton, England, 1964); Enrico M. Camporesi, M.D. (University of Milan, Italy, 1970); Kenneth D. Hall, M.D. (Duke, 1953); Joannes H. Karis, M.D. (State Univ. of Utrecht, Holland, 1952); William J. Murray, Ph.D. (Wisconsin, 1955), M.D. (North Carolina at Chapel Hill, 1962); Lloyd F. Redick, M.D. (Ohio State, 1958); Joseph G. Reves, M.D. (Med. Coll. of South Carolina, 1969); Bruno J. Urban, M.D. (Albertus Magnus, Germany, 1960); Vartan Vartanian, M.D. (Clug Univ. Med. School, Rumania, 1951); Stanley W. Weitzner, M.D. (New York Coll. of Med., 1953).

Associate Professors: Edmond C. Bloch, M.B., Ch.B. (Univ. of Cape Town, South Africa, 1946); Norbertus P. de Bruijn, M.D. (University of Groningen, The Netherlands, 1976); Philip D. Lumb, M.B., B.S. (Univ. of London, 1974); Sidney A. Simon, Ph.D. (Northwestern, 1973); Robert N. Sladen, M.B., Ch.B. (Univ. of Cape Town, South Africa, 1970), M.R.C.P. (Royal Postgrad. Med. Sch., 1973).

Assistant Professors: Fiona Clements, M.D. (Duke, 1975); Jennifer T. Fortney, M.D. (Maryland, 1978); Brian Ginsberg, M.B., B.Ch. (Univ. of Witwatersrand, South Africa, 1975); Peter Glass, M.B., B.Ch. (Univ. of Witwatersrand, Johannesburg, South Africa, 1976); Michael S. Gorback, M.D. (Maryland, 1979); William J. Greeley, M.D. (Texas at Houston, 1976); David H. Hardman, M.D. (Minnesota, 1981); Russell F. Hill, MD. (Emory University, 1982); James R. Jacobs, Ph.D. (Alabama, 1987); John B. Leslie, M.D. (Duke, 1976); Andrew Meyer, M.D. (New York, Downstate, 1969); Richard E. Moon, M.D., C.M. (McGill, 1973), M.Sc. (Univ. of Toronto, 1979); Kevin Ossey, M.B., Ch.B. (University of Cape Town, South Africa, 1981); Stephen Parrillo, M.D. (University of Bologna, Italy, 1982); Timothy J. Quill, M.D. (Ohio, 1980); Ziaur Rahman, M.B. (Prince of Wales Med. Coll., India, 1968); Dianne L. Scott, M.D. (North Carolina at Chapel Hill, 1978); Edward Scruggs, M.D. (South Alabama, 1983); Karen Sibert, M.D. (Baylor, 1982); William A. Wilson, M.D. (Wayne State, 1982).

Assistant Medical Research Professors: Wayne A. Gerth, Ph.D. (California at San Diego, 1979); Joel S. Goldberg, M.D. (Duke, 1977); Pedro Labarca, Ph.D. (Brandeis, 1980); Ying-Fu Su, Ph.D. (Colorado, 1978); Richard Vann, Ph.D. (Duke, 1976).

Clinical Professor: Kenneth Sugioka, M.D. (Washington Univ., 1949).

Associate Clinical Professor: Elisabeth J. Fox, M.B., B.S. (London Univ., 1955).

Assistant Clinical Professors: John A. Jarrell, Jr., M.D. (Johns Hopkins, 1949); F.F.A.R.C.S. (Royal College of Surgeons, England, 1972); R. William McIntyre, M.D. (Univ. of British Columbia, 1970).

Associates: John L. Boyd III, M.D. (Upstate Medical Center, Syracuse, 1976); Christopher Gallagher, M.D. (Washington University, 1984); John Elliott, M.D. (Cincinnati, 1983); Susan Gubert, M.D. (Med. Coll. of Georgia, 1980); Frank Kern, M.D. (Pennsylvania, 1982); Bruce Leone, M.D. (Florida at Gainesville, 1982); David Lubarsky, M.D. (Washington Univ., 1984); Robert Mead, M.D. (Jefferson, 1978), Ph.D. (Purdue, 1972); Thomas E. Stanley III, M.D. (Duke, 1981).

Adjunct Professor: Kwen Jen Chang, Ph.D. (New York at Buffalo, 1972).

Adjunct Associate Professor: Charles G. Lineberry, Ph.D. (Delaware, 1970).

Associate Consulting Professor: Edward T. Thomas, M.B., B.S. (London, 1949), M.R.C.S., L.R.C.P. (England, 1948), F.F.A.R.C.S. (England, 1954).

Assistant Consulting Professor: John J. Freiberger, M.D. (Southwestern, 1979).

Consulting Associates: Peter G. Allinson, M.D. (Miami, 1976); Cecelia Hard, M.D. (Wisconsin, 1979); Vincent Hoellerich, M.D. (Nebraska, 1983).

Medical Research Associate: Andrew T. Canada, Pharm.D. (Philadelphia Coll. of Pharmacy and Science, 1968), Ph.D. (Massachusetts, 1985).

Adjunct Assistant Professor: Allen E. Cato, M.D. (Duke, 1969); Fritz F. Klein, Ph.D. (Duke, 1973); John R. Plachetka, Pharm. D. (Illinois, 1977).

Visiting Associates: Peter Rawle, M.B., B.S. (Westminster Medical School, London, England, 1978); Alberta 'tHooft-Schik, M.D. (Medical Faculty Erasmus University Rotterdam, 1970).

Emeritus: Merel H. Harmel, M.D. (Johns Hopkins, 1943).

## Electives

**ANE-240. Clinical Anesthesiology.** This course (four weeks minimum) is designed to directly expose students to the clinical practice of anesthesiology. Throughout the rotation each student is assigned on a weekly basis to an individual resident or attending physician who will supervise the student's active participation in the pre-, intra- and postoperative anesthetic care and management of patients. Opportunities exist for students to participate in the various subspecialty areas of anesthesiology including pediatric, obstetric, cardiac and neurosurgical anesthesia as well as the recovery room, ICU, and pain clinic. While initial assignments will be made prior to the first day of the rotation, there is flexibility with regard to students' particular areas of interest. The evaluation of patients preoperatively will be taught with emphasis placed upon formulating a plan of anesthetic management which is appropriate for the individual patient. The consequential impact of anesthetics and surgical procedures upon particular disease states will also be stressed. Students will review the clinical pharmacology of anesthetic and adjuvant drugs as well as apply the principles of pharmacology, physiology and anatomy to the clinical anesthetic management of patients. Didactic information regarding principles of airway management, including endotracheal intubation, will be presented and reinforced with application in the clinical setting. Participants will be exposed to basic methods of administering anesthetics and monitoring the depth of anesthesia through physiologic responses of the patient. Special anesthetic techniques such as spinal and lumbar epidural anesthesia and regional nerve blocks will be presented. Instruction in the appropriate techniques and complications of obtaining vascular access for administering drugs and monitoring hemodynamic status will be provided. In addition to this clinical work, students will be given the opportunity to attend various lectures including an introductory series (covering preoperative assessment, airway management and anesthesia equipment), grand rounds and resident lecture series, and various subspecialty conferences (cardiac, pediatrics). There will also be several case conferences at which time students will be expected to present clinical cases they were involved in for discussion. A series of core lecture topics will be provided which will be discussed with the student during the rotation. If time permits, basic cardiac life support instruction and certification will be offered. Weight: 4-8. *Watkins and staff*

**ANE-241. SICU/Recovery.** Four weeks may be spent in the SICU/Recovery Unit participating in the care of a wide variety of patients with critical surgical illnesses. The students will participate in morning and afternoon rounds with SICU attendings and residents, and will be offered lectures on aspects of critical care several times per week. Exposure to problems of management in the recovery room is provided, as well as opportunities to learn procedures and techniques necessary for the management of severely ill patients (e.g., vascular catheterization, hemodynamic monitoring, and mechanical ventilation). Weight 4. *Sladen and staff*

**ANE-242. Anesthesiology Research.** Selected students will participate actively in assigned research projects. These well focused segments of ongoing work in the Department of Anesthesiology are designed to provide an intensive exposure to the process of new investigation in applied pharmacology and physiology. Most students are based in the Anesthesiology Research Laboratories and strongly oriented toward personal involvement in the clinical research settings in the Duke University Medical Center operating

rooms, obstetrical delivery areas, postoperative and intensive care units, the Hyperbaric Laboratories, the pain clinic, or the Clinical Research Unit. An important goal of this experience consists of guiding the student to take conceptual information and move this into concrete scientific presentation and publication. This course is designed primarily for the student who wishes to consider seriously a career in academic anesthesiology. Weight: 8. *Watkins, and staff.*

## Biochemistry

James B. Duke Professor Robert L. Hill, Ph.D. (Kansas, 1954), *Chairman.*

Professors: James B. Duke Professor Robert M. Bell, Ph.D. (California at Berkeley, 1970); G. Vann Bennett, M.D., Ph.D. (Johns Hopkins, 1976); James B. Duke Professor Irwin Fridovich, Ph.D. (Duke, 1955); Samson R. Gross, Ph.D. (Columbia, 1953); Norman Kirshner, Ph.D. (Pennsylvania State, 1952); Nicholas M. Kredich M.D. (Michigan, 1962); James B. Duke Professor Robert J. Lefkowitz, M.D. (Columbia, 1966); Kenneth S. McCarty, Sr., Ph.D. (Columbia, 1957); James B. Duke Professor Paul L. Modrich, Ph.D. (Stanford, 1973); K. V. Rajagopalan, Ph.D. (Univ. of Madras, 1957); Lewis M. Siegel, Ph.D. (Johns Hopkins, 1965); Leonard D. Spicer, Ph.D. (Yale, 1968); Robert E. Webster, Ph.D. (Duke, 1965).

Associate Professors: Ronald C. Greene, Ph.D. (California Inst. of Tech., 1954); Arno L. Greenleaf, Ph.D. (Harvard, 1974); Edward W. Holmes, Jr., M.D. (Pennsylvania, 1967); Tao-Shih Hsieh, Ph.D. (California at Berkeley, 1976); Bernard Kaufman, Ph.D. (Indiana, 1961); David C. Richardson, Ph.D. (Massachusetts Inst. of Tech., 1967); Harvey J. Sage, Ph.D. (Yale, 1958); Deborah A. Steege, Ph.D. (Yale, 1974); J. Bolling Sullivan, Ph.D. (Texas, 1966).

Assistant Professors: Michael D. Been, Ph.D. (Washington, 1982); Perry J. Blackshear, M.D. (Harvard, 1977); Rosalind Coleman, M.D. (Case Western Reserve, 1975); Carol A. Fierke, Ph.D. (Brandeis, 1984); Michael S. Herschfield, M.D. (Pennsylvania, 1967); Russel E. Kaufman, M.D. (Ohio State, 1973); Keith Parker, M.D., Ph.D. (Washington Univ., 1981); Sheldon Pinnell, M.D. (Yale, 1963); Salvatore V. Pizzo, M.D., Ph.D. (Duke, 1973); Allen D. Roses, M.D. (Pennsylvania, 1967); David M. Schlossman, Ph.D. (Duke, 1978), M.D. (Duke, 1979); Gary L. Stiles, M.D. (Vanderbilt, 1975); Robert W. Wheat, Ph.D. (Washington, 1955).

Associate Medical Research Professor: Jane S. Richardson, M.S., M.S.T. (Harvard, 1966).

Assistant Medical Research Professor: Jean L. Johnson, Ph.D. (Duke, 1974).

Adjunct Assistant Professor: Per-Otto Hagen, F.H.W.C. (Watt Univ. Scotland, 1961).

Research Associates: Karin A. Au, Ph.D.; Neil R. Bastian, Ph.D.; Wayne F. Beyer, Jr., Ph.D.; Roy A. Borhardt, Ph.D.; David J. Burns, Ph.D.; Allen E. Eckhardt, Ph.D.; Robert J. Foglesong, Ph.D.; Barbara Hindenach, Ph.D.; Michael H. Hecht, Ph.D.; James A. Imlay, Ph.D.; Rashmi Joshi, Ph.D.; Thomas W. Kirby, Ph.D.; Robert S. Lahue, Ph.D.; Carson R. Loomis, Ph.D.; Kim Marti, Ph.D.; Hisanori Minakami, M.D., Ph.D.; Sherry C. Morash, Ph.D.; Sue H. Neece, Ph.D.; Toshiro Okazaki, Ph.D.; Edward R. Otto, Jr., Ph.D.; Pamala A. Pavco, Ph.D.; Christopher Privalle, Ph.D.; Thomas P. Quinn, Ph.D.; Stuart J. Swiedler, M.D., Ph.D.; Beverly M. Yashar, Ph.D.; Kazushige Yokota, Ph.D.; Lawrence J. Young, M.D., Ph.D.; William A. Zehring, Ph.D.

Emeriti: Mary L. C. Bernheim, Ph.D.; Walter R. Guild, Ph.D.; Jerome S. Harris, M.D.; Yashiko Nozaki, Ph.D.

## Required Courses

**BCH-200.** The core course given to all freshman medical students during a period of thirteen weeks in the first term emphasizes the relationship between structure and function of the major classes of macromolecules in living systems including proteins, carbohydrates, lipids, and nucleic acids. The metabolic interrelationships and control mechanisms are discussed as well as the biochemical basis of human diseases.

**BCH-201.** The required course in genetics for all first-year students is given during four weeks at the end of the first term. The course considers the fundamental processes of heredity from a biochemical viewpoint, together with a brief survey of classical genetics to provide context for the molecular phenomena. Its purpose is to provide an adequate background to allow the student to communicate with professional geneticists and to understand the new molecular and cellular techniques for analysis of the human genome and evaluation of the genetic aspects of disease.

## Electives

**BCH-215(B). Molecular Genetics I: Genetic Mechanisms.** A study of genetic mechanisms in molecular terms with emphasis on gene function, segregation and regulation in procaryotes and eucaryotes. The systems covered will include bacterial viruses, bacteria,

plasmids, cellular organelles, and selected lower and higher eucaryotes. Course material will be drawn from the original literature and will be integrated as much as possible with Biochemistry 268. Weight: 3. *Webster and staff*

**BCH-234(B). Metabolic-Genetic Disease Seminar.** Diseases of metabolism studied in detail with an emphasis on genetic mechanisms and inborn errors of metabolism. The format consists of student seminars, textbook and literature reading. The group will be small enough to permit maximal personal interaction, particularly between students and faculty. Weight: 3. *Kredich*

**BCH-259(B). Molecular Biology I. Protein and Membrane Structure/Function.** Detailed concepts of the structure and function of proteins as enzymes and as structural elements of cellular substructures, including: protein primary structure and its determination, patterns of protein folding, mechanisms of enzyme catalysis and other constituents of biological membranes. Weight: 3. *D. Richardson and staff*

**BCH-268(B). Molecular Biology II. Nucleic Acids.** Consideration of structure and metabolism of nucleic acids in the context of their biological function in information transfer. Emphasis will be on the current research literature. Weight: 4. *Modrich and staff*

**BCH-288(B). The Carbohydrates and Lipids of Biological Systems.** The subjects will be considered in the following two general categories: (1) The relationship between structure and function; particularly, (a.) cell surface carbohydrates as antigenic determinants and their relationship to viral and carcinogen transformation, (b.) connective tissue mucopolysaccharides, (c.) structural features of lipids and phase transitions. (2) Biosynthesis and catabolism. Weight: 2. *Kaufman*

**BCH-291(B). Physical Biochemistry.** Principles of thermodynamics, hydrodynamics, spectroscopy, and X-ray diffraction and scattering are applied to biological systems. Biological molecules and macromolecules in both soluble and crystalline states are discussed. Weight: 3. *Hsieh, Richardson, Sage, and Spicer*

**BCH-297(B). Intermediary Metabolism.** Lectures and student presentations on selected topics in the areas of metabolic regulation, bioenergetics, and other subjects of current research interest in metabolism. Weight: 3. *Siegel and staff*

**BCH-320(B). Cell Differentiation in Development and Disease.** An introduction to the organization of the eukaryotic genome provided by recent technical advances in genetics and the use of recombinant DNA probes. Chromosome inactivation, gene amplification, and the impact of nucleocytoplasmic interactions on the regulation of differentiation will be considered. Transition phases of cell cycle will be discussed in regard to normal and oncogene function. Conferences will be devoted to specific examples dealing with critical aspects of differentiation involved in development of normal and disease states. The course is designed as an introduction to Hormone and Tissue Interactions in Differentiation and Disease. Weight: 2. *McCarty and Counce*

**BCH-321(B). Hormone and Tissue Interactions in Differentiation and Disease.** Hormones and other biochemical signals involved in the regulation of the differentiated state including amino acids, polypeptide and steroid hormone response in insects, snails, and higher vertebrates will be discussed in terms of the new biotechnology used to elucidate mechanisms of information transfer and gene control at the level of the chromatin. Cell-cell, cell-matrix, and hormonal interactions will be considered as control elements in development and differentiation. Interactions involving the cell surface, the basal lamina, and extracellular matrix will be discussed in terms of differentiation of limb bud/pancreas/lymphocyte/and neural tissue. Conferences will include hormone control of sex differentiation, ectopic hormone biosynthesis, and endocrine related diseases. The course is designed as an extension of the course Differentiation in Development and Disease. Weight: 2. *McCarty, Sr., Kaufman, and K. McCarty, Jr.*



**BCH-357(B). Research in Biochemistry.** In a limited number of cases, a student will be permitted to participate in the research program of a faculty member. Acceptance is by individual arrangement with the proposed faculty preceptor. Weight: 1-18 per term.  
*Staff*

**BCH-358(B). Research in Biochemistry.** In a limited number of cases, a student will be permitted to participate in the research program of a faculty member. Acceptance is by individual arrangement with the proposed faculty preceptor. Weight: 1-18 per term.  
*Staff*

## Biological Anthropology and Anatomy

Professor: Richard F. Kay, Ph.D. (Yale, 1973), *Chairman*.

Professors: Matthew Cartmill, Ph.D. (Chicago, 1970); William L. Hylander, D.D.S. (Illinois, 1963), Ph.D. (Chicago, 1972); James B. Duke Professor Elwyn L. Simons, Ph.D. (Princeton, 1956), D. Phil. (Oxford, 1959); John Terborgh, Ph.D. (Harvard, 1963).

Associate Professors: Kenneth Glander, Ph.D. (Chicago, 1975); Kathleen K. Smith, Ph.D. (Harvard, 1980); Carel van Schaik, Ph.D. (Utrecht, 1985).

Assistant Professors: Frank H. Bassett III, M.D. (Louisville, 1957); V. Louise Roth, Ph.D. (Yale, 1982); Patricia C. Wright, Ph.D. (City Univ. of New York, 1985).

Visiting Assistant Professor: Frances J. White, Ph.D. (New York at Stony Brook, 1986).

Research Associates: David A. Burney, Ph.D. (Duke, 1986); Mary C. Maas, Ph.D. (New York at Stony Brook, 1988); Michael E. Pereira, Ph.D. (Chicago, 1984); Pascal G. Picq, Ph.D. (Paris, 1983).

Emeritus: Kenneth L. Duke, Ph.D. (Duke, 1940).

### Required Courses

During Term 1, first-year students are required to take Gross Anatomy (BAA-200). All instruction is designed to be informal and individualized. The general principles and functional viewpoint of living anatomy are emphasized and, whenever possible, fresh tissues and living cells are used.

**BAA-200. Gross Human Anatomy.** Includes complete dissection of a cadaver; laboratory work is supplemented by conferences which place emphasis upon biological and evolutionary aspects. Prerequisites: adequate background in biology, including comparative anatomy and embryology and written consent of instructor. Required of entering graduate students in biological anthropology and anatomy; by arrangement, may extend into second semester. 3 units. *Staff*

### Electives

**BAA-214 (B). Anatomy of the Head and Neck.** This course is designed to be a review of the head and neck, emphasizing its phylogenetic and ontogenetic development along with clinically important features of the anatomy of this region. Weight: 2. *Smith and Staff*

**BAA-221 (B). Anatomy of the Trunk.** Emphasis will be on the anatomy of the thoracic, abdominal, and pelvic organs, including relationships, blood supply and innervations, and, where practical, developmental and microscopic anatomy. The dissections will be supplemented with audiovisual presentations and discussions and with such prosections as are available. Weight: 2. *Duke*

**BAA-224 (B). Tutorial in Gross Anatomy.** A detailed review of selected regions of the human body in the context of the core gross anatomy sequence. Student will plan, with staff, prosections, special presentations, etc. Students will elect to study one or more selected regions in consultation with the staff. Weight: 1-5. *Staff*

**BAA-231 (B). Anatomy of Back and Extremities.** Complete dissection of back and extremities, including pectoral and pelvic girdles. Visual aids will be used extensively. Course planned for orthopaedics, general practice, or neurosurgery. Weight: 3. *Bassett and staff*

# Cell Biology

Professor: Harold P. Erickson, Ph.D. (Johns Hopkins, 1969), *Interim Chairman*.

Professors: Marc G. Caron, Ph.D. (Miami, 1973); Sheila J. Counce, Ph.D. (Edinburgh, 1954); James B. Duke Professor Edward A. Johnson, M.D. (Sheffield, 1953); R. J. Reynolds Professor in Medical Education Montrose J. Moses, Ph.D. (Columbia, 1949); R. Bruce Nicklas, Ph.D. (Columbia, 1958); George M. Padilla, Ph.D. (California at Los Angeles, 1960); Michael K. Reedy, M.D. (Washington, 1962); Jacqueline A. Reynolds, Ph.D. (Washington, 1963); James B. Duke Professor J. David Robertson, M.D. (Harvard, 1945).

Associate Professors: Celia Bonaventura, Ph.D. (Texas at Austin, 1968); Joseph Bonaventura, Ph.D. (Texas at Austin, 1968); Joseph M. Corless, M.D., Ph.D. (Duke, 1972); Eric L. Effmann, M.D. (Indiana, 1967); J. Mailen Kootsey, Ph.D. (Brown, 1966); Thomas J. McIntosh, Ph.D. (Carnegie-Mellon, 1973); Frederick H. Schachat, Ph.D. (Stanford, 1974); David W. Schomberg, Ph.D. (Purdue, 1965).

Assistant Professors: Yair Argon, Ph.D. (Harvard, 1980); William E. Garrett, Jr., M.D., Ph.D. (Duke, 1976); Michael K. Lamvik, Ph.D. (Chicago, 1976); Virginia Ann Lightner, M.D., Ph.D. (Duke, 1982); Patricia M. Saling, Ph.D. (Pennsylvania, 1979).

Associate Medical Research Professors: Michael C. Kohn, Ph.D. (South Carolina, 1969); Kenneth A. Taylor, Ph.D. (Berkeley, 1975).

Assistant Medical Research Professor: Michael D. Feezor, Ph.D. (North Carolina at Chapel Hill, 1969).

Adjunct Professor: Vladimir Petrow, Ph.D., D.Sc. (London, 1947), F.R.S.C. (England, 1944).

Adjunct Assistant Professors: Hie Ping Beall, Ph.D. (Tulane, 1967); David A. Kopf, Ph.D. (Chicago, 1980).

## DIVISION OF PHYSIOLOGY

Professor: James B. Duke Professor J. Joseph Blum, Ph.D. (Chicago, 1954), *Head of Division*.

Professors: Enrico M. Camporesi, M.D. (Milan, 1970); John W. Gutknecht, Ph.D. (North Carolina at Chapel Hill, 1963); Stuart Handwerker, M.D. (Maryland, 1964); Diane L. Hatchell, Ph.D. (Marquette, 1968); Frans F. Jöbsis, Ph.D. (Michigan, 1958); Melvyn Lieberman, Ph.D. (State Univ. of New York, 1964); Lazaro J. Mandel, Ph.D. (Pennsylvania, 1969); Thomas J. McManus, M.D. (Boston, 1955); Robert Plonsey, Ph.D. (California, 1956); George G. Somjen, M.D. (New Zealand, 1961); Joachim R. W. Sommer, M.D. (Munich, 1951); Madison S. Spach, M.D. (Duke, 1954).

Associate Professors: Onyekwere E. Akwari, M.D. (Southern California, 1970); Nels C. Anderson, Ph.D. (Purdue, 1964); Joseph C. Greenfield, M.D. (Emory, 1956); Elliott Mills, Ph.D. (Columbia, 1964); Steven R. Vigna, Ph.D. (Washington, 1978).

Assistant Professors: Page A. W. Anderson, M.D. (Duke, 1963); Vincent W. Dennis, M.D. (Georgetown, 1966); Mark K. Drezner, M.D. (Pittsburgh, 1970); Ann LeFurgey, Ph.D. (North Carolina at Chapel Hill, 1976); J. Scott Rankin, M.D. (Tennessee, 1969); Andrew G. Wallace, M.D. (Duke, 1959); R. Sanders Williams, M.D. (Duke, 1973); William E. Yarger, M.D. (Baylor, 1971).

Associate Medical Research Professors: Peter G. Aitken, Ph.D. (Connecticut, 1978); Avis L. Sylvia, Ph.D. (North Carolina at Chapel Hill, 1973).

Assistant Medical Research Professors: Wayne A. Gerth, Ph.D. (California at San Diego, 1979); Bruce Maurice Klitzman, Ph.D. (Virginia, 1979); Bruce Lobaugh, Ph.D. (Pennsylvania State, 1981); Alan D. Magid, Ph.D. (Washington, 1974); Joseph R. Stimers, Ph.D. (Southern California, 1982).

Adjunct Professor: Kenneth Sugioka, M.D. (Washington, 1949).

Adjunct Associate Professors: Franklin G. Hempel, Ph.D. (Texas, 1969); Charles R. Horres, Jr., Ph.D. (Duke, 1975); James M. Schooler, Jr., Ph.D. (Wisconsin, 1964).

Adjunct Assistant Professors: Reginald D. Carter, Ph.D. (Bowman Gray, 1970); Elizabeth Murphy, Ph.D. (Pennsylvania, 1980).

## Required Courses

**CBI-200. Medical Physiology.** Lectures and conferences on cell and organ physiology. Human and medical aspects are stressed in clinical conferences. Required of first-year medical students; limited to other students whose training requires knowledge of human physiology as it pertains to medicine. Lectures, conferences, and computer-based laboratory exercises. Prerequisite: consent of course leader. *Somjen and staff*.

**CBI-201. Histology: Cell and Tissue Biology.** Lectures on structural organization of different tissues and organs, as determined by light and electron microscopy with emphasis on the relation of structure to function at the cellular level. The laboratory provides practical experience with light microscopy, studying and analyzing an extensive slide collection of mammalian tissues. *McIntosh and staff*

## Electives

**CBI-217(B). Membrane Transport.** Basic principles of the transport of water and solutes across biological and model membranes. The course uses physiochemical principles to provide a comprehensive understanding of phenomena such as active and passive transport, energy barriers through membranes, surface effects, and ion selectivity. The methodology and conceptual framework for the study of transport is described with selected examples from bilayers, red blood cells, nerve and epithelia. Physical chemistry is recommended. Prerequisites: Consent of the instructor. Weight: 3. *Mandel and Simon*

**CBI-222(B). Respiratory System in Health and Disease.** Primary emphasis is on the physiology of respiration. Topics covered include pulmonary mechanics; gas exchange; ventilation-perfusion relationships; central and peripheral regulation of ventilation; and respiratory responses to exercise, altitude, and hyperbaric environments. Weight: 2. *Camporesi*

**CBI-225(B). Neurobiology of Sensory Systems.** This course will provide a detailed examination of the morphology, biochemistry and electrophysiology of sensory systems with special emphasis on the primary receptor transduction mechanisms, with central nervous system projections as appropriate. Weight: 3. *Corless, Simon, and staff*

**CBI-259(B). Molecular Biology I. Protein and Membrane Structure/Function.** Detailed concepts of the structure and function of proteins as enzymes and as structural elements of cellular substructures, including: protein primary structure and its determination, patterns of protein folding, mechanisms of enzyme catalysis and regulation, function and formation of multimeric protein assemblies, proteins and other constituents of biological membranes. Weight: 3. *Erickson, D. Richardson, Bell, Hill, and J. Richardson*

**CBI-269(B). Advanced Cell Biology.** Structural and functional organization of cells and their components with emphasis on current research problems and prospects. Weight: 3. *Erickson, Nicklas, and staff*

**CBI-320(B). Cell Differentiation in Development and Disease.** The primary objective is to present important concepts of organization and retrieval of genetic information as they relate to storage, replication, transcription, processing, and translation of genetic information. Chromosome inactivation, gene amplification, and the impact of nucleocytoplasmic interactions on the regulation of differentiation will be considered. Transition phases of cell cycle will be discussed in regard to normal and oncogene function. Conferences will be devoted to specific examples dealing with critical aspects of differentiation involved in development of normal and disease states. The course is designed as an introduction to Hormone and Tissue Interactions in Differentiation and Disease. Weight: 2. *Counce and McCarty*

**CBI-321(B). Hormone and Tissue Interactions in Differentiation and Disease.** Hormones and other biochemical signals involved in the regulation of the differentiated state including amino acids, polypeptide and steroid hormone response in insects, snails, and higher vertebrates will be discussed in terms of the new biotechnology used to elucidate mechanisms of information transfer and gene control at the level of the chromatin. Cell-cell, cell-matrix, and hormonal interactions will be considered as control elements in development and differentiation. Interactions involving the cell surface, the basal lamina, and extracellular matrix will be discussed in terms of organization of cell populations in gastrulation and neurulation and in the differentiation of limb bud/pancreas/lymphocyte/and neural tissue. Conferences will include hormone control of sex differentiation, ectopic hormone biosynthesis, and endocrine related diseases. The course is designed as an extension of the course Differentiation in Development and Disease. Weight: 2. *S. Counce, K. McCarty, Sr., B. Kaufman, K. McCarty, Jr.*

**CBI-340(B). Tutorial in Cell Biology/Physiology.** Selected topics will be chosen for intensive reading and discussion. Topics may be chosen related to basic problems of cytology, growth and development, biophysics, endocrinological control, neuroanatomy, physiological differentiation and evolutionary origins of functional microsystems. Prerequisites: Permission of faculty preceptor. Weight: 1-3. *Staff*

**CBI-414(B). The Human Embryo.** The first eight weeks of development are considered in detail, including fertilization, implantation, formation and function of embryonic membranes and placenta, and establishment of major organ systems. Emphasis is placed on distinctive features of human embryogenesis, and on causes, identification, and treatment of congenital defects. Weight: 2. *Counce, Crain, and Effmann*

**CBI-417(B). Cellular Endocrinology.** Also listed as PHR-417(B). Current concepts of the mechanisms of action of hormones at the cellular level; including hormone-receptor interactions; second messenger systems for hormones; structure and molecular biology of receptors, ion channels, G-proteins and other components of signal transduction systems; mechanisms of regulation of hormone responsiveness; regulation of growth, differentiation and proliferation; cellular and electrophysiological mechanisms of secretory stimulus sensing and transduction; systems approach to feedback regulation and information transfer in an endocrine system. Lectures by local and outside clinical faculty will stress the clinical correlation of the basic concepts elaborated in the course. Students will be expected to participate in one seminar presentation. Weight: 2. *Caron, and Padilla*

**CBI-418(B). Reproductive Biology.** An in-depth study of male and female reproductive processes including hypothalamic, pituitary and gonadal control mechanisms as well as the physiology of pregnancy and parturition. Lectures by guest clinical faculty will emphasize the interface between basic science and clinical aspects. The lecture material in each section of the course is followed by seminar presentations which will contribute to CBI 424, a co-requisite for the course. Weight: 2. *Anderson, Tyrey, and Schomberg*

**CBI-424(B). Reproductive Biology Seminar.** Selected topics in reproductive biology will be chosen for in-depth reading and analysis in the seminar format. The seminar is to be taken as a co-requisite with CBI-418(B). Weight: 1. *Anderson, Tyrey, and Schomberg*

## Community and Family Medicine

Professor: George R. Parkerson, Jr., M.D. (Duke, 1953), M.P.H. (North Carolina at Chapel Hill, 1977) *Chairman*.

Professor: E. Harvey Estes, Jr., M.D. (Emory, 1947).

Assistant Professor: Walter E. Broadhead, M.D. (Duke, 1981), Ph.D. (North Carolina at Chapel Hill, 1987), *Director of Research*.

Associate Clinical Professor: Katharine A. Munning, Ph.D. (Iowa, 1979), *Director of Education*.

Associates: David F. Allen, Ph.D. (Virginia, 1982); Jay C. Smout, Ph.D. (North Carolina at Chapel Hill, 1988).

Clinical Associates: Paul W. Misch, M.D. (Michigan State, 1981); Mark W. Woodruff, M.D. (Tufts, 1985); Kimberly S. Yarnell, M.D. (Florida, 1985).

## DIVISION OF BIOMETRY

Associate Professor: William E. Wilkinson, Ph.D. (North Carolina at Chapel Hill, 1968); *Chief*.

Professors: Thomas E. Frothingham, M.D. (Harvard, 1951); Stephen L. George, Ph.D. (Southern Methodist, 1969); William E. Hammond, Ph.D. (Duke, 1967).

Associate Professors: Frank E. Harrell, Jr., Ph.D. (North Carolina at Chapel Hill, 1979); Kerry L. Lee, Ph.D. (North Carolina at Chapel Hill, 1974); William W. Stead, M.D. (Duke, 1973).

Assistant Professors: Michael J. Belyea, Ph.D. (North Carolina State, 1981); Carol Bigelow, Ph.D. (Washington, 1984); Daniel G. Blazer II, M.D. (Tennessee, 1969), Ph.D. (North Carolina at Chapel Hill, 1980); Deborah V. Dawson, Ph.D. (North Carolina at Chapel Hill, 1981); George W. Divine, Ph.D. (Texas, 1987); James E. Herndon II, Ph.D. (North Carolina at Chapel Hill, 1988); Kathryn Magruder-Habib, Ph.D. (North Carolina at Chapel Hill, 1978); Lawrence H. Muhlbaier, Ph.D. (North Carolina at Chapel Hill, 1981); Bercedis L. Peterson, Ph.D. (North Carolina at Chapel Hill, 1986); Gary L. Rosner, Sc.D. (Harvard, 1985); Gregory P. Samsa, Ph.D. (North Carolina at Chapel Hill, 1988); Lloyd R. Smith, Ph.D. (Alabama, 1985).

Assistant Clinical Professor: John R. Feussner, M.D. (Vermont, 1973).

Medical Research Professor: Kenneth G. Manton, Ph.D. (Duke, 1974).  
Research Associates: James D. Collins, Ph.D. (Duke, 1982); Michael Helms, B.S. (North Carolina at Chapel Hill, 1971).

## DIVISION OF COMMUNITY MEDICINE

Assistant Professor: James L. Michener, M.D. (Harvard, 1978); *Chief*.  
Professors: David M. Eddy, M.D. (Virginia, 1963), Ph.D. (Stanford, 1978); Clark C. Havighurst, J.D. (Northwestern, 1958); Harmon L. Smith, Ph.D. (Duke, 1962); David G. Warren, J.D. (Duke, 1964).  
Associate Professor: Joseph Lipscomb, Jr., Ph.D. (North Carolina at Chapel Hill, 1975).  
Assistant Professors: John B. Nowlin, M.D. (Duke, 1959); Ruby L. Wilson, Ed.D. (Duke, 1968).  
Associate: Catherine M. Severns, R.N.P. (Yale, 1971).  
Assistant Clinical Professors: Melvin Berlin, M.D. (Duke, 1953); Howard J. Eisenson, M.D. (Duke, 1979); Timothy R. Oman, M.D. (Virginia, 1981); Kimberly S. Yarnell, M.D. (Univ. of Florida, 1985).  
Clinical Associates: Marci K. Campbell, M.P.H. (North Carolina at Chapel Hill, 1977); Anne L. Phelan-Adams, M.D. (Virginia, 1981); Cecil Price, M.D. (Bowman Gray, 1982); Anne Walch, B.H.S. (Duke, 1985).  
Research Associate: William T. Vaughan, R.Ph., R.P.A. (North Carolina at Chapel Hill, 1972).

## DIVISION OF FAMILY MEDICINE

Assistant Professor: Keith A. Frey, M.D. (Medical College of Virginia, 1979); *Chief*.  
Associate Professors: Barrie J. Hurwitz, M.D. (Witwatersrand, South Africa, 1968); Robert J. Sullivan, Jr., M.D. (Cornell, 1966), M.P.H. (North Carolina at Chapel Hill, 1973).  
Assistant Professor: Kathryn A. Andolsek, M.D. (Northwestern, 1975).  
Assistant Clinical Professors: Kathryn K. Bucci, Pharm.D. (St. Johns, 1986); Joyce A. Copeland, M.D. (North Carolina at Chapel Hill, 1975); James N. Finch, M.D. (South Florida, 1981); Albert A. Meyer, M.D. (New York, Downstate Medical Center, 1975); Richard K. Serra, M.D. (Michigan, 1977).  
Clinical Associates: Hendy H. Buckley, Ph.D., (Duke, 1980); Suzanne Johannet, M.D. (Harvard, 1984); Mary Lee Lobach, M.D. (Vanderbilt, 1984); Elizabeth Nadler, M.D. (New York Univ., 1985).  
Clinical Instructor: Joseph W. Kertesz, Jr., M.A. (Michigan, 1973).

## DIVISION OF OCCUPATIONAL MEDICINE

Associate Clinical Professor: George W. Jackson, M.D. (Western Reserve, 1968), *Chief*.  
Professor: Siegfried H. Heyden, M.D. (Univ. of Berlin, Germany, 1951).  
Assistant Professor: Linda Frazier, M.D. (Mount Sinai, 1980); Kendall Green, M.D. (New York, 1983); Ph.D. (New York 1980).  
Assistant Clinical Professors: John W. Cromer, Jr., M.D. (Nebraska, 1972); Gary N. Greenberg, M.D. (Northwestern, 1978), M.P.H. (North Carolina at Chapel Hill, 1983); Rodney L. Lowman, Ph.D. (Michigan State, 1979); Woodhall Stopford, M.D. (Harvard, 1969), M.S.P.H. (North Carolina at Chapel Hill, 1980); Wayne R. Thomann, Ph.D. (North Carolina at Chapel Hill, 1983).  
Clinical Associates: Gary N. Pøsternak, M.D. (California at San Diego, 1983), M.P.H. (California at Berkeley, 1987); Andrew S. Silberman, M.S.W. (North Carolina at Chapel Hill, 1982).  
Research Associate: James M. Schmidt, B.H.S. (Duke, 1974).

## DIVISION OF PHYSICIAN'S ASSISTANT TRAINING

Assistant Clinical Professor: Reginald D. Carter, Ph.D. (Bowman Gray, 1970), *Chief*.  
Assistant Clinical Professor: Michael A. Hamilton, M.D. (Rochester, 1964), M.P.H. (North Carolina at Chapel Hill, 1969), *Medical Director*.  
Professor: Arthur C. Christakos, M.D. (South Carolina, 1955).  
Assistant Professor: Malcolm Henderson Rourk, Jr., M.D. (Pennsylvania, 1963).  
Clinical Associates: Lovest T. Alexander, B.H.S. (Duke, 1978); Patricia M. Dieter, M.P.A. (Pennsylvania State, 1983); Phillip A. Price, B.H.S. (Duke, 1982); Jan Victoria Scott, B.H.S. (Duke, 1981).  
Instructor: Joyce Nichols, R.P.A. (Duke, 1970).

## DUKE DIET AND FITNESS CENTER

Assistant Clinical Professor: Michael A. Hamilton, M.D. (Rochester, 1964), M.P.H. (North Carolina at Chapel Hill, 1969), *Chief*.  
Assistant Clinical Professor: Ronette L. Kolotkin, Ph.D. (Minnesota, 1978).

## ADJUNCT FACULTY

Adjunct Professor: Barbara S. Hulka, M.D. (Columbia, 1959), M.P.H. (Columbia, 1961), Chapel Hill, NC.  
Adjunct Associate Professors: James F. Gifford, Jr., Ph.D. (Duke, 1969), Durham, NC; Richard J. Levine, M.D. (St. Louis, 1971), Research Triangle Park, NC.  
Adjunct Assistant Professor: James D. Bernstein, M.H.A. (Michigan, 1968), Raleigh, NC.

## COMMUNITY FACULTY

- Assistant Professor: Lars C. Larsen, M.D. (New York at Syracuse, 1973); Fayetteville, NC.
- Associate: Bruce W. Blackwell, M.D. (Ohio, 1980), Fayetteville, NC.
- Associate Clinical Professor: Charles Ellenbogen, M.D. (Chicago-Pritzker, 1964), Fayetteville, NC.
- Assistant Clinical Professor: James M. Wetter, M.D. (New York at Buffalo, 1974), Fayetteville, NC.
- Clinical Associates: Marla L. Berg-Weger, M.S. (Kansas, 1983), Fayetteville, NC; Thomas W. Stearns, Ph.D. (Florida State, 1980), Fayetteville, NC; John S. Weiner, Pharm. D. (Michigan, 1982), Fayetteville, NC.
- Consulting Professor: Donald M. Hayes, M.D. (Bowman Gray, 1954), Greensboro, NC.
- Associate Consulting Professors: Sigrid J. Nelius, M.D. (Ludwig Maximilian, Germany, 1949), Durham, NC; Samuel W. Warburton, Jr., M.D. (Pennsylvania, 1969), Durham, NC.
- Assistant Consulting Professors: James C. Abell, M.D. (North Carolina at Chapel Hill, 1966), Statesville, NC; Joseph E. Agsten, M.D. (North Carolina at Chapel Hill, 1973), Kinston, NC; Lawrence M. Alexander, M.D. (Duke, 1952), Sanford, NC; J. Powell Anderson, M.D. (Duke, 1949), Waynesboro, VA.; Paul S. Andrews, M.D. (North Carolina at Chapel Hill, 1981), Durham, NC; William G. Aycocock, M.D. (Duke, 1954), Mebane, NC; Evan A. Ballard, M.D. (Duke, 1976), Jonesville, NC; Daniel H. Barco, M.D. (Duke, 1972), Durham, NC; James E. Barham, M.D. (Duke, 1974), Anderson, SC; Ruby W. Barker, M.D. (North Carolina at Chapel Hill, 1967), Durham, NC; William J. Blackley, M.D. (North Carolina at Chapel Hill, 1975), Elkin, NC; James S. Blair, Jr., M.D. (Maryland, 1947), Wallace, NC; Donald E. Bley, M.D. (Duke, 1972), Fredericksburg, VA.; Don W. Bradley, M.D. (Med. Coll. of Virginia, 1976), Durham, NC; Susan E. Brown, M.D. (Georgetown, 1976), Durham, NC; Jack R. Cahn, M.D. (Pennsylvania State, 1972), Sparta, NC; Walker H. Campbell, M.D. (Med. Coll. of Virginia, 1963), Goldsboro, NC; Jane T. Carswell, M.D. (Med. Coll. of Virginia, 1958), Lenoir, NC; Jerry Cassuto, M.D. (New York Med. Coll., 1956), Greensboro, NC; Robert S. Cline, M.D. (North Carolina at Chapel Hill, 1957), Sanford, NC; Timothy D. Coughlin, M.D. (Cincinnati, 1972), Reno, NV; Bruce A. Dalton, Jr., M.D. (North Carolina at Chapel Hill, 1969), Research Triangle Park, NC; Charles Davant, Jr., M.D. (Med. Univ. of South Carolina, 1945), Blowing Rock, NC; Charles Davant III, M.D. (North Carolina at Chapel Hill, 1978), Blowing Rock, NC; John D. Davis, Jr., M.D. (North Carolina at Chapel Hill, 1978), Blowing Rock, NC; Clyde J. Dellinger, M.D. (Duke, 1961), Drexel, NC; Elizabeth R. DeLong, Ph.D. (North Carolina at Chapel Hill, 1979), Chapel Hill, NC; Curtis J. Eshelman, M.D. (Michigan, 1971), Durham, NC; Lawrence L. Fleenor, M.D., (Virginia, 1966), Big Stone Gap, VA; John S. Gaskin, Jr., M.D. (Duke, 1959), Albemarle, NC; Raymond A. Gaskins, Jr., M.D. (North Carolina at Chapel Hill, 1975), Fayetteville, NC; Harry I. Geisberg, M.D. (Louisville, 1972), Anderson, SC; E. Wilson Griffin III, M.D. (Duke, 1977), Jonesville, NC; Albino Gomez-Uria, M.D. (Madrid School of Medicine, 1962), Asheville, NC; Michael D. Gooden, M.D. (North Carolina at Chapel Hill, 1973), Goldsboro, NC; Jeffrey S. Harris, M.D. (New Mexico, 1975), Nashville, TN; James K. Hartye, M.D. (Vanderbilt, 1977), North Wilkesboro, NC; Richard R. Honablu, M.D. (Me-harry, 1974), Williamsburg, VA; Paul O. Howard, M.D. (Virginia, 1955), Sanford, NC; Peter Jacobi, M.D. (Case Western Reserve, 1979), Durham, NC; Lane E. Jennings, M.D. (Miami, 1975), Port Orange, FL; Pamela H. Jessup, M.D. (Bowman Gray, 1977), Sanford, NC; Eric M. Johnsen, M.D. (Wayne State, 1977), Albemarle, NC; Lyndon K. Jordan, M.D. (Duke, 1961), Smithfield, NC; Hervy B. Kornegay, Sr., M.D. (Bowman Gray, 1957), Mount Olive, NC; Charles W. Lapp, M.D. (Albany Med. Coll., 1974), Raleigh, NC; Walter L. Larimore, M.D. (Louisiana, 1977), Bryson City, NC; Stephen C. Lies, M.D.; G. Yancey Mebane, M.D. (Duke, 1954), Mebane, NC; Lawrence Myers, Ph.D. (California at Berkeley, 1972), Research Triangle Park, NC; John W. Nance, M.D. (Bowman Gray, 1948), Clinton, NC; Talbot F. Parker, Jr., M.D. (Jefferson, 1951), Goldsboro, NC; George R. Parkerson III, M.D. (Duke, 1984), M.P.H. (Harvard, 1985), Zimbabwe; Melvin T. Pinn, Jr., M.D. (Virginia, 1976), Charlotte, NC; Calvin Reams III, M.D. (Miami, 1975), Thomasville, NC; Jessica Sax-Schorr, M.D. (Tufts, 1977), Charlotte, NC; Charles P. Scheil, M.D. (Duke, 1958), Lenoir, NC; Evelyn D. Schmidt, M.D. (Duke, 1951), M.P.H. (Columbia, 1962), Durham, NC; Harold D. Schutte, M.D. (Loma Linda, 1962), Asheville, NC; Philip G. Singer, M.D. (Duke, 1975), Hillsborough, NC; Hal M. Stuart, M.D. (Bowman Gray, 1956), Elkin, NC; William B. Tarry, Jr., M.D. (Med. Coll. of Virginia, 1953), Oxford, NC; Richard L. Taylor, M.D. (North Carolina at Chapel Hill, 1962), Oxford, NC; Christopher Unger, M.D. (Pennsylvania, 1969), Bethesda, MD; William B. Waddell, M.D. (Duke, 1962), Galax, VA; Joseph E. Walker, M.D., (Duke, 1960), Galax, VA; John W. Watson, M.D. (Med. Coll. of Virginia, 1953), Oxford, NC; Abner C. Withers, M.D. (North Carolina at Chapel Hill, 1962), Morganton, NC; Glenn A. Withrow, M.D. (North Carolina at Chapel Hill, 1985), Durham, NC; Robert K. Yowell, M.D. (Duke, 1961), Durham, NC.
- Consulting Associates: John B. Anderson, Jr., M.D. (Cincinnati, 1980), Oxford, NC; Daniel D. Crummett, M.D. (Wayne State, 1982), Hillsborough, NC; Mark A. DiJulio, M.D. (Georgetown, 1981), Fayetteville, NC; Regina M. Earle, M.D. (Chicago, 1982), Fayetteville, NC; R. Scott Eden, M.D. (Duke, 1980), Annapolis, MD; William Greenwood, M.D. (New Mexico, 1982), Fayetteville, NC; William E. Hall, M.D. (Abraham Lincoln, 1973), Sanford, NC; David C. Jones, M.D. (Duke, 1979), Mebane, NC; Robert E. Kane, M.D. (Nevada, 1981), Fayetteville, NC; William R. Lambeth, M.D. (Bowman Gray, 1974), Durham, NC; Frank W. Leak, M.D. (North Carolina at Chapel Hill, 1967), Clinton, NC; Linda T. McAlister, M.D. (California at San Francisco, 1978), Fayetteville, NC; J. T. Newton, M.D. (North Carolina at Chapel Hill, 1981), Clinton, NC; Latham C. Peak, M.D. (Bowman Gray, 1951), Clinton, NC; Gwendolyn Powell, M.D. (Miami, 1981), M.P.H. (North Carolina at Chapel Hill, 1986), Durham, NC; John E. Prescott, M.D. (Georgetown, 1981), Fayetteville, NC; John L. Rouse III, M.D. (Bowman Gray, 1973), Clinton, NC; Deborah Smith, M.S.W. (North Carolina at Chapel Hill, 1969), Durham, NC; Kurt Stange, M.D. (Albany, 1983), Durham, NC; Allen H. Van Dyke, Jr., M.D. (Bowman Gray, 1971), Durham, NC; Gregory K. Whitaker, M.D. (South Carolina, 1978), Fayetteville, NC.
- Emeriti:* Leonard J. Goldwater, M.D.; Dorothy E. Naumann, M.D.; Max Woodbury, Ph.D.

## Required Course

**CFM-205. Clerkship in Family Medicine.** This basic course in family medicine consists of an eight-week clinical clerkship in the second year. The course's goal is to provide students with an understanding of the principles of family medicine and of how these principles apply in community practice. The course emphasizes continuous and comprehensive health care for people of both sexes and all ages within the context of their social groups and the communities. Particular attention is paid to the diagnosis and treatment of common medical problems and to health maintenance, ambulatory care, continuity of care and the role of consultants in primary care. Other topics covered include social factors, such as the doctor-patient relationship and the role of the physician in the community, and the economics of health care delivery.

The clerkship is divided into two halves. During the first half, the student is based with full-time family medicine faculty on campus at Pickens Health Center. For the other half of the clerkship, students are placed with community-based faculty who are practicing family physicians in communities other than Durham, but principally within North Carolina. Both components of the course provide students with extensive experience in diagnosing and managing patient problems under the guidance of the department's faculty. In addition, both components provide students with the opportunity to see patients in a variety of settings, including the office, home, nursing home, and community hospital.

The on-campus component provides considerably more structured instruction in the diagnosis and management of both common and uncommon problems, while the off-campus preceptorship provides a more "real life" experience in the practice of medicine in the community. The two components supplement each other, and together offer the student a broad exposure to medical problems and a realistic perspective on medicine and its relationship to other important institutions in the community. It also provides a basis for understanding the interdependent relationships between community and referral center physicians.

**CFM-207. Preceptorship in Family Medicine.** This course is identical to the preceptorship component of CFM-205, described above. Each student has a choice of either CFM-205 or a combination of CFM-207 and MED-207, the four-week neurology clerkship.

## Electives

**CFM-211(B). Probability and Statistical Inference.** Laws of probability, probability distributions, descriptive statistics, graphical displays of relationships, philosophy of statistical tests, tests for differences in central tendency, paired comparisons and correlation. Type I and Type II errors and problems of multiple comparisons. Weight: 3. *Dawson*

**CFM-212(B). Design of Etiological, Clinical and Experimental Studies.** General principles of study design. Observational studies, including case-control and cohort designs, their relative advantages and statistical methods used in their analysis. Experimental studies, including randomized controlled clinical trials, their principal features, ethics and alternative sequential design strategies. Design of data collection instruments and studies to assess observer variability and to evaluate diagnostic tests. Weight: 3. *Smith*

**CFM-213(B). Medical Data Management and Statistical Computing.** Database management considerations and file structures for collecting and organizing research data. Uses IBM-PCs, DataEase, and SAS for examples. Prerequisite: Experience with PC-DOS (e.g., continuing education short course) or permission of instructor. Weight: 3. *Muhlbaier and Harrell*

**CFM-217(B). Clinical Decision Analysis.** Using formal methods for analyzing complex patient management problems. Structuring problems as trees. Applying data from the literature to estimate the likelihood of outcomes. Quantitating the value of health out-

comes. Calculating the strength of preference for one strategy over others. Decision analysis as a guide to clinical research and as a policy tool. Weight: 3. *Matchar*

**CFM-233(B). Biomedical Uses of Computers.** An indepth study of the use of computers in biomedical applications. Important concepts related to hardware, software, and applications development will be studied through analysis of state-of-the-art systems involving clinical decision support, computer-based interviewing, computer-based medical records, departmental/ancillary systems, instructional information systems, management systems, national data bases, physiological monitoring, and research systems. C-L: Biomedical Engineering 243. Weight: 3. *Hammond*

**CFM-234(B). Artificial Intelligence in Medicine.** An introduction to basic concepts of artificial intelligence (AI) and an indepth examination of medical applications of AI. The course includes heuristic programming and a brief examination of the classic AI programming languages (LISP and PROLOG) and a study of rule-based systems and cognitive models. Specific applications examined in detail include MYCIN, ONCOCIN, PIP, CASNET, and INTERNIST and selected EXPERT systems. C-L: Biomedical Engineering 265. Weight: 3. *Hammond*

**CFM-235(B). Microprocessors and Digital Instruments.** Design of microcomputer-based devices including both hardware and software considerations of system design. Primary emphasis on hardware aspects, including a progression through initial design, prototype construction in the laboratory, testing of prototypes to locate and correct faults, and final design evaluation. Evaluation includes examination of complexity, reliability and cost. Design and construction oriented toward biomedical devices or instruments that include dedicated microcomputers, usually operating in real time. C-L: Biomedical Engineering 205. Weight: 3. *Hammond*

**CFM-236(B). Digital Computers and Their Application in Ambulatory Care.** For students desiring an intensive exposure to medical computer application. The flexible format of the course permits a variety of projects in computer medicine. Examples include projects in medical data bases; interactive patient interviewing; computer-aided instruction; patient/physician education; data collection, organization, retrieval, display, and analysis; and M.D.-assist programs. Opportunities exist for activities at Pickens Family Practice in Durham, Duke/FAHEC Family Medicine Center in Fayetteville and other sites. Prerequisite: Permission of instructor. Weight: 1-8. *Hammond, Michener, and Blackwell*

**CFM-238(B). Tutorial in Community and Family Medicine.** An eight week, individually arranged experience in which the student participates in the research program of a faculty member. The subject matter, course weight, and meeting time will be arranged with the faculty member. Each student will meet regularly with the faculty preceptor and will carry out a project related to the preceptor's work. Through these discussions and project, the student will be able to develop an understanding of the discipline involved. Possible areas include health education, geriatrics, family dynamics, occupational health, health assessment, medical education, management sciences, economic aspects of health care, computer technology, biostatistics and epidemiology clinical decision making, diagnosis and management of common problems, alcoholism, and social support systems. Because of the variety of projects available and the necessity of prior arrangements, it is essential that interested students consult with the instructor or staff at least two months before the beginning of the term selected. Permission of instructor. Weight: 1-18. *Parkerson and staff*

**CFM-240(B). Epidemiologic Methods in Primary Care Research.** This is a survey course covering basic principles and methods of epidemiologic research and their application to primary care populations. Topics covered in this course include refining a research question, methods of reviewing the literature, ethical considerations in research involving human subjects and the basic types of study design in epidemiology. Other concepts of design, analysis and interpretation of data to be covered include errors in



statistical inference, bias, confounding, interaction, and epidemiologic inference. Methods of questionnaire design and data collection will be studied as well as the logistics of study implementation, and basic methods of data analysis. Course activities include lecture, directed readings and discussions of research questions chosen by the students in consultation with the instructors. Students are required to prepare a detailed study proposal by the end of the term. Interested students should consult with the instructor at least two months before the beginning of the term. Prerequisite: Permission of instructor. Weight: 2. *Broadhead and Magruder-Habib*

**CFM-242(B). Nutrition Epidemiology.** Nutrition epidemiology may be defined as the study of the role of the nutrition factor in the causal web of illness patterns in human populations. This course offers a systematic review of population approaches to the study of nutrition. Currently, most nutrition courses are primarily concerned with studies using *in vitro* laboratory techniques, animal models, or individual human subjects, with minimal emphasis on human population groups in their natural environments. In the course, emphasis will be placed on methods available for chronic disease epidemiologic research since most nutritional disorders in man are basically chronic. Particular attention will be directed to principles of research design and critical analyses of selected studies. It is hoped that at the completion of the course, the student will be prepared to design and conduct population-based studies on human nutrition. Prerequisite: Permission of instructor. Weight: 1. *Heyden and Michener*

**CFM-243(B). Occupational Medicine.** (Formerly Medicine and Industry). In this four to eight weeks course, students participate in projects being conducted in the Division of Occupational Medicine. Background material will be presented covering history of occupational (industrial) medicine, labor legislation, workmen's compensation and the Occupational Safety and Health Act (OSHA) of 1970. Clinical and epidemiological aspects of occupational diseases will be included, with emphasis on industrial hygiene and toxicology. Organization and administration of employee health programs will also be considered, with visits to representative establishments as part of the experience. Typical projects include such matters as evaluation of chemical exposures in the work environment, reactions of humans to chemical stress, medical evaluation of suspected cases of occupational disease. Weight: 6. *Cromer, Stopford, and Jackson*

**CFM-244(B). Seminars in Occupational Medicine and Toxicology.** Seminar topics will generally relate to occupational/environmental hazards important to North Carolina. Toxicologic hazards associated with agriculture, textiles, mining, furniture manufacturing, primary and secondary chemical industries, research and health care institutions will be discussed. Duke faculty and outside faculty will be participants in this seminar series. Weight: 2. *Cromer and Stopford*

**CFM-245(B). Organization and Management of Ambulatory Care Centers.** A series of seminars to discuss ambulatory care systems. Material covered will be of interest to all students who will work in an office setting. Emphasis will be placed on the group practice as a mechanism for providing ambulatory health services. Topics of discussion will include the conceptual basis for organizing ambulatory care centers; center objectives; automated subsystems for registration, appointments, diagnostic studies, health providers and managers; marketing; human relations; professional recruitment and group selection; financial forecasting and budgeting. During the second term discussions will center around specific areas of interest with participation in direct application. Prerequisite: Permission of instructor. Weight: 1-2. *Michener and Kozel*

**CFM-246(B). Historical Studies in a Medical Specialty.** This elective is offered primarily to those who have made the choice of their probable career specialty. It is intended to provide an appreciation of the developments in that specialty and thereby deepen an understanding of it. While the choice of elective topic will be made on an individual basis and depend on the interests of each student, emphasis generally will be placed on

specific theoretical, practical, and organizational developments since the second half of the nineteenth century. The format comprises selected readings, tutorials, and student project. Weight: 1 or 2. *Crellin, Gifford, and English*

**CFM-247(B). Medicine in America.** The historical development of the medical profession in the United States, with attention to such topics as the changing basis of authority for medical practice, the education of the physicians, the impact of science and technology on health care, physician-patient relations, the organization of the profession as a whole and by specialty, the emergence of the hospital, the role of government in health care delivery and contemporary criticisms of the health care system. The history of the Duke University Medical Center provides a recapitulation of course themes. Additional units of credit may be earned through independent study. Weight: 1. *Gifford*

**CFM-248(B). The Development of and Perspectives on Modern Medicine.** Comprising lectures, discussion, and readings, this course outlines the general history of medicine, with particular attention given to recent developments. The course will include such topics as the contributions of William Harvey, aspects of clinical diagnosis, and the evolution of key concepts in modern medicine such as cell theory, the germ theory, antiseptics, and theories of immunity. Full use will be made of the excellent resources of the Trent Collections. Additional unit of credit may be earned through independent study. Weight: 1. *Crellin and Gifford*

**CFM-250. Clinical Nutrition.** This course will provide an overview of and practice in the assessment and management of common nutritional problems in primary care. Topics will include nutritional assessment, prenatal nutrition, breastfeeding, pediatric nutrition, nutritional care of the diabetic, obesity, nutrition in geriatrics, and preventive nutrition. Weight: 1. *Kramish and Michener*

**CFM-251. Tutorial in Clinical Nutritional Epidemiology.** (1) Coronary heart disease; risk factor concept, the latest development in prevention; international intervention studies. (2) Cerebrovascular disease; hypertension intervention; mass strategy of prevention vs. individual case treatment. (3) Major neoplastic diseases: breast cancer, prostate cancer, colon cancer, lung cancer, oral cancer; cancer education and screening in industry. (4) Clinical nutrition. Potassium—sodium. Cholesterol controversies. Weight reduction. Diabetes diet. Coffee and caffeine studies. Weight: 2. *Heyden*

**CFM-256. Ethical Issues in Medicine.** This seminar will examine ethical questions raised by modern biomedical science and technology, with special attention to their implications for primary care practitioners. It will offer both historical and systematic analysis, and attend to models of physician-patient relationships. Among topics for consideration will be ethical method; resource allocation, justice, and public policy; medical beneficence; and concepts of rights; together with selected practice-related issues (e.g., truth-telling, confidentiality, abortion, contraception, consent, definition and meaning of death, behavior modification, and the like). Weight: 1. *Smith*

**CFM-257. Philosophic Problems for Physicians.** This seminar is designed to help the fourth year medical student prepare for becoming an intern/resident in the areas of dealing with patients: taking on that level of responsibility; telling the family/patient about serious illness or about the patient's terminal condition; working with a family at the time of death; and dealing personally and professionally with the kinds of pressures placed on the intern/resident (how to do more than survive the next three to five years, keeping marriage together, being a parent, etc.) Weight: 2 or 4. *Puckett and staff*

**CFM-258. Legal Issues in Medicine.** A seminar which introduces participants to the basic approach of law and legal process to contemporary issues in medical care, including malpractice, hospital privileges, confidentiality, natural death, abortion, consent/authorization for treatment, human experimentation, and peer review. Topics may be chosen by individual students. Common misconceptions about malpractice law and

the rights of physicians and patients as well as the legal mechanisms for resolving disputes will be examined. Weight: 2. *Warren*

**CFM-259. Advanced Clerkship in Family Medicine.** This course provides intensive instruction and practice in the care of primary care patients in the community setting. Students may elect an outpatient or inpatient focus, and may select from three sites: Duke Family Medicine Center, Pickens Family Practice, and Duke-FAHEC Family Medicine Center in Fayetteville, NC. An outpatient focus is recommended for students who would like to improve their skills in the care of ambulatory patients, especially those with common problems. Students selecting the outpatient focus may choose among the three sites. An inpatient focus is recommended for students who would like to improve their skills in the care of acutely ill patients in a community hospital setting. Students selecting the inpatient focus will be based as subinterns on the Family Medicine Teaching Service at Durham County General Hospital. Prerequisite: Permission of instructor. Because of restrictions on the number of students allowed at each site, students are advised to contact the department as early as possible for course approval. No drops will be permitted within 60 days of the first day of the rotation. Weight: 2-8. *Michener, Oman, and staff*

**CFM-261. Family Medicine Continuity Experience.** Students will manage a panel of patients over an extended period of time at the Pickens Family Practice Center under supervision of faculty and fellows. Patient care will be scheduled for one to two half days a week for two to four months, and the rotation may be repeated to provide further continuity. A student project is also required. Prerequisite: Permission of instructor. Weight: 2-8. *Michener and staff*

**CFM-262. Clerkship in Occupational Medicine.** This four to eight week clerkship is flexible and can offer experiences in the area of the design of occupational health programs, the management of occupational health services, and the care and evaluation of workers exposed to various chemical and physical agents. Seminars during the rotation can cover such topics as industrial toxicology, ergonomics, physiological stress in the work place, legal and ethical issues in occupational medicine and health promotion. Weight: 6. *Stopford and staff*

**CFM-263. Relating to the Patient as a Family Doctor.** Family dynamics and psychosomatic concepts are related to family medicine and primary care. Prerequisite: Permission of instructor. Weight: 2. *Kertesz and Finch*

**CFM-267. Team Training in Health Delivery.** This course provides experience in the delivery of health care in a setting which utilizes a variety of health professionals such as physicians, physician assistants, nurses, psychologists, nutritionists, exercise physiologists, and support personnel. The student will learn the team approach in the education and treatment of patients with weight management problems associated with dysfunctional lifestyle. Direct observation, participation in clinical services, assigned readings, and tutorials are the teaching strategies used. Prerequisite: Permission of instructor. Weight: 4-8. *Hamilton, Kolotkin, Cogburn, and Moore*

**CFM-271. The Computer Textbook of Medicine.** Students will participate in the ongoing development of a computerized database in cardiovascular disease. They will participate in research concerning the diagnosis, treatment, and prognosis of patients with coronary artery disease, and they will learn how to make predictions about outcome based on test results of patients on the cardiology service. Prerequisite: Permission of instructor. Weight: 2 and 4. *Pryor, Califf, Lee, and Harrell*

**CFM-273. The Ideal Physician.** What is the role of the physician in relating with patients? How do you communicate with patients and families? How well do you do this? What is your "bedside manner?" How do you learn about this other than through models and self-reflection? This seminar will provide a small group atmosphere for learning more about such skills and for receiving direct feedback on your own communication style and skills. Weight: 1-2. *Puckett and staff*

**CFM-274. The Ideal Patient.** Who is the "ideal" patient? What about those who are not so ideal? This seminar will combine theory and practice. Information about "difficult" personality types and effective interpersonal skills for dealing with these individuals will be integrated into actual practice. Members of the seminar will be asked to draw upon past and current experiences with difficult persons and situations as well as to focus on case presentations provided by the instructor. Weight: 1-2. *Puckett and staff*

**CFM-299. Community and Family Medicine Preceptorships.** An individually tailored preceptorship will be arranged for students to work with a family physician in a community practice site almost anywhere in the United States. The rotation will allow students to observe and participate in the delivery of health care to individual patients and their families within the context of the community in which they live. The rotation is intended to supplement and complement the second year core preceptorship. A wide variety of geographic locations and practice types are available. Because of the necessity for prior arrangements with preceptors, it is essential that interested students contact the instructor as soon as possible and at least three months prior to the desired term. Weight: 4-9. *Michener and staff*

## Medicine

James B. Duke Professor: Joseph C. Greenfield, Jr., M.D. (Emory, 1956); *Chairman.*

### DIVISION OF ALLERGY, CRITICAL CARE, AND RESPIRATORY MEDICINE

Professor: James D. Crapo, M.D. (Rochester, 1971); *Chief.*

Professors: C. Edward Buckley, M.D. (Duke, 1954); Johannes A. Kylstra, M.D. (Univ. of Leiden, 1952); Harold R. Rotman, M.D. (Univ. of Toronto, 1958); Herbert A. Saltzman, M.D. (Jefferson, 1952); Herbert O. Sieker, M.D. (Washington Univ., 1948).

Visiting Professor of Medicine: Werner Hofmann, Ph.D. (University of Vienna, 1973).

Associate Professors: Thomas P. Kennedy, M.D. (Vanderbilt, 1975); Claude Piantadosi, M.D. (Johns Hopkins, 1975); Stephen L. Young, M.D. (California at San Francisco, 1968).

Assistant Professors: William J. Fulkerson, M.D. (North Carolina at Chapel Hill, 1977); Douglas G. Kelling, M.D. (Harvard, 1972); Neil MacIntyre, M.D. (Cornell, 1972); Wayne M. Samuelson, M.D. (Utah, 1980); Lyn A. Thet, M.D. (Inst. of Med., Burma, 1971).

Assistant Medical Research Professors: Ling-Yi Chang, Ph.D. (North Carolina State, 1982); Ye-Shih Ho, Ph.D. (Carnegie Mellon, 1981); Robert R. Mercer, Ph.D. (North Carolina at Chapel Hill, 1982); Juan Vergara, M.D. (Univ. of Chile, 1952).

Associates in Medicine: John B. Cox, M.D. (George Washington, 1983); Phillip J. Fracica, M.D. (New York, Downstate, 1981); Andrew J. Ghio, M.D. (Boston Univ. 1981); Stephen B. Liggett, M.D. (Miami, 1982).

Medical Research Associates: Barbara Buckley, Ph.D. (Johns Hopkins, 1985); Nelson Leatherman, Ph.D. (Michigan, 1967).

### DIVISION OF CARDIOLOGY

James B. Duke Professor: Joseph C. Greenfield, M.D. (Emory, 1956); *Chief.*

Professors: Victor S. Behar, M.D. (Duke, 1961); Fred R. Cobb, M.D. (Mississippi, 1964); Walter L. Floyd, M.D. (Johns Hopkins, 1954); Joseph R. Kisslo, M.D. (Hahnemann, 1967); Yi-Hong Kong, M.D. (Natl. Defense Med. Ctr., Taiwan, 1958); James B. Duke Professor Robert J. Lefkowitz, M.D. (Columbia, 1966); James J. Morris, M.D. (State Univ. of New York, 1959); Robert H. Peter, M.D. (Duke, 1961); Walter Kempner Professor of Medicine Andrew G. Wallace, M.D. (Duke, 1959); Robert E. Whalen, M.D. (Cornell, 1956).

Associate Professors: Thomas M. Bashore, M.D. (Ohio, 1972); Augustus O. Grant, M.D. (Edinburgh, 1971); Barbara C. Newborg, M.D. (Johns Hopkins, 1949); Edward Pritchett, M.D. (Ohio, 1971); Robert A. Rosati, M.D. (Duke, 1967); Gary L. Stiles, M.D. (Vanderbilt, 1975); Harold C. Strauss, M.D. (McGill, 1964); Judith L. Swain, M.D. (California at San Diego, 1974); Galen S. Wagner, M.D. (Duke, 1965); Robert Waugh, M.D. (Pennsylvania, 1966); R. Sanders Williams, M.D. (Duke, 1974).

Associate Medical Research Professors: Judith C. Rembert, Ph.D. (North Carolina at Chapel Hill, 1972); William M. Smith, Ph.D. (Duke, 1970)

Assistant Professors: Robert M. Califf, M.D. (Duke, 1978); A. Alan Chu, M.D. (Duke, 1980); Michael B. Higginbotham, M.D. (Univ. of Melbourne, 1973); Mark A. Hlatky, M.D. (Pennsylvania, 1976); Brian K. Kobilka, M.D. (Yale, 1981); Mitchell W. Krucoff, M.D. (George Washington, 1980); Daniel B. Marks, M.D. (Tufts, 1978); Pamela B. Morris, M.D. (Duke, 1981); Douglas L. Packer, M.D. (Utah, 1980); Harry R. Phillips, M.D. (Duke, 1975); David B. Pryor, M.D. (Michigan, 1976); Richard S. Stack, M.D. (Wayne State, 1976); Martin J. Sullivan, M.D. (Ohio State, 1980); J. Marcus Wharton, M.D. (Vanderbilt, 1980).

Assistant Medical Research Professors: Jack T. Cusma, Ph.D. (Wisconsin, 1983); Susan M. Kleiner, Ph.D. (Case Western, 1987).

Associates: Robert P. Bauman, M.D. (Wayne State, 1977); James R. Bengston, M.D. (George Washington, 1983); Charles J. Davidson, M.D. (Connecticut, 1982); Stephen M. Denning, M.D. (Duke, 1980); Susan B. French, M.D. (California at San Diego, 1982); F. Roosevelt Gilliam, M.D. (Duke, 1981); Stevan I. Himmelman, M.D. (Tennessee, 1982); Jodie L. Hurwitz, M.D. (Albert Einstein, 1981); William E. Kraus, M.D. (Duke, 1982); William J. Parsons, M.D. (Dartmouth, 1980); Khalid H. Sheikh, M.D. (Florida, 1981); James Tchong, M.D. (Johns Hopkins, 1982); Thomas C. Wall, M.D. (Bowman Gray, 1982).

## DIVISION OF CLINICAL PHARMACOLOGY

Professor: James E. Nidel, M.D. (Miami, 1973), *Chief*.

Assistant Medical Research Professor: Robert W. Dougherty, Ph.D. (Med. Coll. of Virginia, 1983).

## DIVISION OF DERMATOLOGY

Professor: Sheldon R. Pinnell, M.D. (Yale, 1963); *Chief*.

Associate Professor: Sheldon V. Pollack, M.D. (Toronto, 1974).

Assistant Professors: Claude S. Burton, M.D. (Duke, 1979); Russell P. Hall, M.D. (Missouri, 1975); Virginia A. Lightner, M.D. (Duke, 1982); John C. Murray, M.D. (Duke, 1977); Elise A. Olsen, M.D. (Baylor, 1978); M. Joyce Rico, M.D. (Florida, 1981).

Assistant Medical Research Associates: Douglas J. Darr, Ph.D. (Pennsylvania State, 1982); Saood Murad, Ph.D. (California at Davis, 1978).

## DIVISION OF GASTROENTEROLOGY

Professor: Ian L. Taylor, M.B. (Liverpool School of Medicine, 1969), *Chief*.

Professors: Peter B. Cotton, M.B. (St. Thomas Hosp., 1963); Michael McLeod, M.D. (Duke, 1960); Malcolm P. Tyor, M.D. (Duke, 1946).

Associate Professors: John T. Garbutt, M.D. (Temple, 1962); Paul G. Killenberg, M.D. (Pennsylvania, 1963); Rodger A. Liddle, M.D. (Vanderbilt, 1978); Thomas T. Long, M.D. (Bowman Gray, 1966); Steven H. Quarfordt, M.D. (New York Univ., 1960); Joanne A. P. Wilson, M.D. (Duke, 1973).

Assistant Professors: John Baillie, M.B. (Glasgow Univ., 1977); Jonathan A. Cohn, M.D. (Rockefeller, 1978); Jacqueline C. Hijmans, M.D. (Univ. of Leiden, 1951); Christine M. Hunt, M.D. (Boston Univ., 1982); Toan D. Nguyen, M.D. (Chicago-Pritzker, 1978).

Associates: Scott R. Brazer, M.D. (Case Western Reserve, 1981); Nicholas J. Nickl, M.D. (Tennessee, 1982); William S. Putnam, M.D. (Duke, 1980).

## DIVISION OF GENERAL INTERNAL MEDICINE

Assistant Professor: John R. Feussner, M.D. (Vermont, 1973), *Chief*.

Associate Professor: Francis A. Neelon, M.D. (Harvard, 1962).

Assistant Professors: J. Trig Brown, M.D. (Washington Univ., 1977); G. Ralph Corey, M.D. (Baylor, 1973); Khin Mae Hla, M.D. (Inst. of Med., Burma, 1971); Mark Linzer, M.D. (Johns Hopkins, 1977); David B. Matchar, M.D. (Maryland, 1980); David L. Simel, M.D. (Duke, 1980).

Associates: W. Blair Brooks, M.D. (Dartmouth, 1979); John T. Kihm, M.D. (Wayne State, 1984); Julia E. McMurray, M.D. (North Carolina at Chapel Hill, 1979); Eugene Z. Oddone, M.D. (Colorado, 1985); Nancy M. Phillips, M.D. (Dartmouth, 1979); Amy E. Saunders, M.D. (Ohio State, 1983); Mark D. Schwartz, M.D. (Cornell, 1984); William C. Siegel, M.D. (Stanford, 1980); Roxanne R. Travelute, M.D. (Kansas, 1981); John W. Williams, M.D. (North Carolina at Chapel Hill, 1984); Jeffrey G. Wong, M.D. (Utah, 1985).

## DIVISION OF GERIATRICS

Professor: Harvey Jay Cohen, M.D. (SUNY, 1965); *Chief*.

Assistant Professors: Mark Currie, M.D. (Texas at Dallas, 1978); Kenneth W. Lyles, M.D. (Med. Coll. of Virginia, 1974); Stephanie A. Studenski, M.D. (Kansas, 1979).

Assistant Medical Research Professors: Elizabeth Colerick, Ph.D. (Cornell, 1984); Connie Bales, Ph.D. (Tennessee, 1981); K. Murali Krishna Rao, Ph.D. (Gandhi Med. Coll., 1968).

Associates: Andrea Hackel, M.D. (Duke, 1981); Thomas W. Jackson, M.D. (Med. Coll. of Georgia, 1982); Kenneth E. Schmader, M.D. (Bowman Gray, 1980).

Medical Research Associate: Lucille A. Bearon, Ph.D. (Duke, 1982).

## DIVISION OF HEMATOLOGY-ONCOLOGY

Florence McAlister Professor: Wendell F. Rosse, M.D. (Chicago, 1958); *Codirector (Hematology)*.

Professor: Robert C. Bast, M.D. (Harvard, 1971); *Codirector (Oncology)*.

Professors: Andrew T. Huang, M.D. (Taiwan, 1965); Thomas F. Newcomb, M.D. (Pittsburgh, 1951); Harold R. Silberman, M.D. (Washington Univ., 1956); Donald L. Trump, M.D. (Johns Hopkins, 1970).

Associate Professors: Arthur Frankel, M.D. (Illinois, 1979); Jon P. Gockerman, M.D. (Chicago, 1967); Russel Kaufman, M.D. (Ohio, 1973); Roger J. Kurlander, M.D. (Chicago, 1971); Joseph O. Moore, M.D. (Johns Hopkins, 1971); J. Brice Weinberg, M.D. (Arkansas, 1969).

Assistant Professors: B. Alton Brantley, M.D. (Duke, 1978); Wayne Brenckman, M.D. (Yale, 1963); Robert L. Fine, M.D. (Chicago, 1979); Charles S. Greenberg, M.D. (Hahnemann, 1976); Yusuf A. Hannun, M.D. (American University of Beirut, 1981); James W. Hathorn, M.D. (Duke, 1979); Roy B. Jones, M.D. (Duke, 1975); William H. Kane, M.D. (Washington Univ., 1982); S. Spence McCachren, M.D. (Duke, 1978); William P. Peters, M.D. (Columbia, 1978); George Phillips, M.D. (Duke, 1978); David M. Schlossman, M.D. (Duke, 1979); Elizabeth Shpall, M.D. (Cincinnati, 1980); Marilyn J. Telen, M.D. (New York, 1977); George Richard Vandenberg, M.D. (Ohio State, 1978).

Assistant Medical Research Professors: Komandoor E. Achyuthan, Ph.D. (Osmania, 1982); Cinda M. Boyer, Ph.D. (Pennsylvania, 1980); Suramen Ramakrishnan, Ph.D. (All India Inst., 1969).

Associates: Camille L. Bedrosian, M.D. (Harvard, 1983); Paul R. Conkling, M.D. (Ohio State, 1982); Pamela J. Honeycutt, M.D. (Duke, 1981); Jeffrey E. Shogan, M.D. (Pennsylvania, 1982).

## DIVISION OF INFECTIOUS DISEASES

Professor: David T. Durack, M.B., B.S. (West Australia, 1969); D.Phil. (Oxford, 1973); *Chief*.

Professor: John D. Hamilton, M.D. (Colorado, 1964).

Associate Professors: Harry A. Gallis, M.D. (Duke, 1967); Kenneth H. Wilson, M.D. (North Carolina at Chapel Hill, 1974).

Assistant Professors: Donald L. Granger, M.D. (Utah, 1972); Mary E. Klotman, M.D. (Duke, 1980); John R. Perfect, M.D. (Med. Coll. of Ohio, 1975); Hetty A. Wasikin, M.D. (Michigan, 1978).

Assistant Medical Research Professor: Dena L. Toffaletti, Ph.D. (North Carolina at Chapel Hill, 1977).

Associates: John A. Bartlett, M.D. (Virginia, 1981); Gunther J. Lallingier, M.D. (Ludwig, 1972).

## DIVISION OF METABOLISM, ENDOCRINOLOGY, AND GENETICS

James B. Wyngaarden Clinical Professor of Medicine: Edward W. Holmes, M.D. (Pennsylvania, 1967); *Chief*.

Professors: Marc K. Drezner, M.D. (Pittsburgh, 1970); Harry T. McPherson, M.D. (Duke, 1948).

Associate Professors: Perry J. Blackshear, M.D. (Harvard, 1977); Warner M. Burch, M.D. (Bowman Gray, 1971); George J. Ellis, M.D. (Harvard, 1963); Mark N. Feinglos, M.D. (McGill, 1973); Jerome M. Feldman, M.D. (Northwestern, 1961); Charles Johnson, M.D. (Howard, 1963).

Assistant Professors: Frederick L. Dunn, M.D. (Illinois, 1974); Keith Parker, M.D. (Washington Univ., 1981).

Assistant Medical Research Professors: Bruce Lobaugh, Ph.D. (Pennsylvania State, 1981); Douglas A. Rice, Ph.D. (Chicago, 1980); Richard Sabina, Ph.D. (Texas A&M, 1979); Deborah J. Stumpo, Ph.D. (West Virginia, 1984).

Associate: Lina-Marie Obeid, M.D. (American Univ. of Beirut, 1983).

## DIVISION OF NEPHROLOGY

Professor: Vincent W. Dennis, M.D. (Georgetown, 1966); *Chief*.

Professors: James R. Clapp, M.D. (North Carolina at Chapel Hill, 1957); J. Caulie Gunnells, M.D. (South Carolina Med. Coll., 1956).

Associate Professors: William W. Stead, M.D. (Duke, 1973); William E. Yarger, M.D. (Baylor, 1963).

Assistant Professors: Thomas Coffman, M.D. (Ohio, 1980); Paul E. Klotman, M.D. (Indiana, 1976); L. Darryl Quarles, M.D. (Alabama, 1979); Steve J. Schwab, M.D. (Missouri, 1979); Ulrich Schwertschlag, M.D. (Univ. of Heidelberg, 1975); Laura P. Svetkey, M.D. (Harvard, 1979).

Assistant Medical Research Professor: Didier Portilla, M.D. (Univ. del Valle, 1977).

Associates in Medicine: James J. Onorato, M.D. (Case Western Reserve, 1984); John R. Raymond, M.D. (Ohio State, 1982).

## DIVISION OF NEUROLOGY

Professor: Allen D. Roses, M.D. (Pennsylvania, 1967); *Chief*.

Professors: James N. Davis, M.D. (Cornell, 1965); James O. McNamara, M.D. (Michigan, 1968); Donald B. Sanders, M.D. (Harvard, 1964).

Associate Professors: Barrie H. Hurwitz, M.D. (Witwatersrand Univ., 1968); E. Wayne Massey, M.D. (Texas at Galveston, 1970); S. Clifford Schold, M.D. (Arizona, 1973); Ara Tourian, M.D. (Iowa, 1958).

Assistant Professors: Michael H. Bowman, M.D. (Ohio State, 1976); Andrew C. Bragdon, M.D. (Washington Univ., 1977); Christopher Clark, M.D. (Jefferson, 1973); Janice M. Massey, M.D. (Georgetown, 1978); Rodney A. Radtke, M.D. (Northwestern, 1980); Marvin Rozear, M.D. (Duke, 1966); Donald Schmechel, M.D. (Harvard, 1974); Cheolsu Shin, M.D. (Alabama, 1977); Teepu Siddique, M.D. (Dow Med. Coll., 1973); Charles R. Stewart, M.D. (Tulane, 1972).

Assistant Medical Research Professors: Richard J. Bartlett, Ph.D. (Texas at Houston, 1979); Douglas Bonhaus, Ph.D. (Arizona, 1983); Michel Deschuytener, Ph.D. (Free Univ., 1983); John R. Gilbert, Ph.D. (North Carolina

at Chapel Hill, 1982); Sanjeev D. Nandedkar, Ph.D. (Virginia 1983); Margaret Pericak-Vance, Ph.D. (North Carolina at Chapel Hill, 1978).

Associates: Mark J. Alberts, M.D. (Tufts, 1982); Robert Albright, M.D. (Pennsylvania, 1979); Nancy L. Earl, M.D. (North Carolina at Chapel Hill, 1982); Larry B. Goldstein, M.D. (Mt. Sinai, 1981); David A. Hosford, M.D. (Emory, 1983).

## DIVISION OF RHEUMATOLOGY AND IMMUNOLOGY

Professor: Frederic M. Hanes Professor of Medicine Barton F. Haynes, M.D. (Baylor, 1973); *Chief.*

Professors: Warner C. Greene, M.D. (Washington Univ., 1977); Nicholas M. Kredich, M.D. (Michigan, 1962).

Associate Professors: David S. Caldwell, M.D. (Bowman Gray, 1967); Michael S. Hershfield, M.D. (Pennsylvania, 1967); David S. Pisetsky, M.D. (Albert Einstein, 1973); John R. Rice, M.D. (Miami, 1968).

Associate Medical Research Professor: Kay H. Singer, Ph.D. (Duke, 1977).

Assistant Professors: Nancy B. Allen, M.D. (Tufts, 1978); Richard P. Polisson, M.D. (Duke, 1976); Michael F. Seldin, M.D. (Baylor, 1981); E. William St. Clair, M.D. (West Virginia, 1980).

Assistant Medical Research Professors: Bryan R. Cullen, Ph.D. (New Jersey, 1984); Thomas J. Palker, Ph.D. (Connecticut, 1982).

Associate: C. Christine Cox, M.D. (North Carolina at Chapel Hill, 1980).

Medical Research Associate: Vickie Christenson, Ph.D. (Duke, 1982).

## ADJUNCT FACULTY

Professor of Experimental Medicine: Pedro Cuatrecasas, M.D. (Washington, 1962).

Adjunct Professors of Medicine: A. Wallace Hayes, Ph.D. (Auburn, 1967); Russell G. McAllister, M.D. (Virginia, 1967); Ralph Snyderman, M.D. (New York, Downstate, 1965).

Adjunct Associate Professor of Experimental Medicine: S. Duk Lee, Ph.D. (Maryland, 1961).

Adjunct Associate Professor of Medicine: Thomas L. Wenger, M.D. (Boston, 1971).

Adjunct Assistant Professors of Medicine: Gary E. R. Hook, Ph.D. (Victoria, 1968); Richard Kent, M.D. (California at San Diego, 1975).

Adjunct Assistant Professor of Experimental Medicine: John J. O'Neil, Ph.D. (California at San Francisco, 1974).

## CONSULTING FACULTY

Consulting Professors: David W. Barry, M.D. (Yale, 1969), Research Triangle Park, NC; Robert A. Gutman, M.D. (Florida, 1962), Durham, NC; Eric Prystowsky, M.D. (Mt. Sinai, 1973), Indianapolis, IN.

Associate Consulting Professors: Robert S. Gilgor, M.D. (Pennsylvania, 1962), Chapel Hill, NC.; Harold L. Godwin, M.D. (Harvard, 1947), Fayetteville, NC; Bruce S. Ribner, M.D. (Harvard, 1970), Asheville, NC.

Assistant Consulting Professors: William S. Abernathy, M.D. (Columbia, 1969); Durham, NC; Syed Ahmed, M.D. (Dow Med. Coll., 1967), Danville, VA; John T. Baker, M.D. (Harvard, 1971), Durham, NC; Franc A. Barada, M.D. (Virginia, 1971), Durham, NC; Robert A. Buchanan, M.D. (Bowman Gray, 1969), Durham, NC; Gary V. Burton, M.D. (Utah, 1978), Shreveport, LA; Edwin Cox, M.D. (Duke, 1971); Walter E. Davis, M.D. (Duke, 1966), Durham, NC; Lewis D. Elliston, M.D. (Baylor, 1969), Asheville, NC; Richard W. Evans, M.D. (Eastern Virginia, 1976), Asheville, NC; Richard B. Everson, M.D. (Rochester, 1972), Research Triangle Park, NC; P. K. George, M.D. (All India Inst., 1969), Raleigh, NC; Marcel Gilbert, M.D. (Laval Univ., 1966) Quebec; James M. Gilchrist, M.D. (Loyola, 1979), Providence, RI; Albino Gomez-Uria, M.D. (Madrid Sch. of Med., 1962), Asheville, NC; Gloria F. Graham, M.D. (Bowman Gray, 1961), Wilson, NC; Michael C. Hindman, M.D. (Illinois, 1973), Durham, NC; Samuel Hyde, M.D. (Tulane, 1962), Asheville, NC; H. LeRoy Izlar, M.D. (Duke, 1948), Durham, NC; Elizabeth Kanof, M.D. (New York Univ., 1960), Raleigh, NC; James F. Keel, M.D. (Duke, 1974), Concord, NC; James R. Kelly, M.D. (Duke, 1970), Durham, NC; Douglas E. Lemley, M.D. (West Virginia, 1982), Concord, NC; D. Edmond Miller, M.D. (Duke, 1956), Durham, NC; Eva L. Morgenstern, M.D. (Connecticut, 1976), Asheville, NC; Frank S. Pancotto, M.D. (Chicago, 1975), Concord, NC; James B. Puckett, M.D. (North Carolina at Chapel Hill, 1974), Concord, NC; Jesse Roberts, M.D. (Louisiana, 1961), Winston-Salem, NC; Mehrdad M. Sahba, M.D. (Isfahan Faculty of Med., Iran, 1957), Durham, NC; John B. Simpson, M.D. (Duke, 1973), Woodside, CA; Abdolazim Vaezy, M.D. (Tehran University, 1969), Asheville, NC; Abe Walston, M.D. (Duke, 1963), Durham, NC; Edward S. Williams, M.D. (North Carolina at Chapel Hill, 1954), Durham, NC; James O. Wynn, M.D. (Cornell, 1951), Chapel Hill, NC.

Consulting Associates: Martha Bennett Adams, M.D. (Virginia, 1976), Durham, NC; Faye T. Banks, M.D. (Virginia, 1982), Durham, NC; L. Thomas Barber, M.D. (George Washington, 1982), Durham, NC; Ira M. Bernstein, M.D. (Bowman Gray, 1970), Asheville, NC; Garrett Bressler, M.D. (Duke, 1978), Durham, NC; Louis L. Brunetti, M.D. (Mt. Sinai, 1983), Charlotte, NC; Paul S-C Chang, M.D. (Chicago, 1983), Asheville, NC; Alexander Chiamramonti, M.D. (Michigan, 1976), Cary, NC; George W. Crane, M.D. (Northwestern, 1946), Durham, NC; Clarence Faulcon, M.D. (New York, Downstate, 1983), Durham, NC; Walter C. Fitzgerald, M.D. (Virginia, 1943), Durham, NC; Leon W. Geary, M.D. (Texas Tech., 1975), Durham, NC; Bonnie Goodwin, M.D. (Dartmouth, 1977), Pollacksville, NC; Robert A. Harrell, M.D. (Johns Hopkins, 1980), Durham, NC; Robert B. Johnson, M.D. (Duke, 1978), Cary, NC; Dennis C. Kabasan, M.D. (Univ. of Graz, 1977), Asheville, NC; G. Wallace Kernodle,

M.D. (North Carolina at Chapel Hill, 1981), Burlington, NC; Stanley Levy, M.D. (Georgetown, 1971), Durham, NC; Stuart H. Manning, M.D. (Duke, 1976), Durham, NC; Patricia M. Mauro, M.D. (Cornell, 1977); Durham, NC; Michael M. Meighan, M.D. (Univ. of Northeast, 1980), Asheville, NC; Giribala R. Patel, M.D. (B. J. Med. Coll.), Asheville, NC; Mark A. Powers, M.D. (Dartmouth, 1977), Durham, NC; Brahmaji S. Puram, M.D. (Andhra Med. Coll., 1974), Asheville, NC; Vijayalakshmi Puram, M.D. (Guntar Med. Coll., 1972), Asheville, NC; Veronica J. F. Ray, M.D. (North Carolina at Chapel Hill, 1979), Durham, NC; Jack G. Robbins, M.D. (Duke, 1948), Durham, NC; Manfred Rothstein, M.D. (Duke, 1974), Cary, NC; John M. Schillo, M.D. (Maryland, 1981), Asheville, NC; Michael B. Shipley, M.D. (Duke, 1974); Durham, NC; Charles Simonton, M.D. (Harvard, 1978), Charlotte, NC; W. Vance Singletary, Jr., M.D. (Duke, 1975), Durham, NC; Jeannette F. Stein, M.D. (North Carolina at Chapel Hill, 1981), Durham, NC; Robert B. Stewart, M.D., (West Virginia, 1974); Durham, NC; Raymond J. Toher, M.D., (Duke, 1974), Durham, NC; William F. Uthe, M.D., (Med. Coll. of Ohio, 1974), Durham, NC; Janet K. Vasey, M.D. (Indiana, 1983), Asheville, NC; Ann Elise Weinrich, M.D., (Med. Univ. of South Carolina, 1978), Durham, NC; William J. Wysor, M.D. (Virginia, 1950), Chapel Hill, NC.

## CLINICAL FACULTY

Associate Clinical Professor: Charles Ellenbogen, M.D. (Chicago, 1964).

Assistant Clinical Professors: Theresa Blumfelder, M.D. (Missouri, 1973); Jeffrey Crawford, M.D. (Ohio, 1974); Kenneth Morris, M.D. (Ohio, 1972).

Emeriti: J. Lamar Callaway, M.D.; Albert Heyman, M.D.; Walter Kempner, M.D.; Edward S. Orgain, M.D.; John B. Pfeiffer, M.D.; R. Wayne Rundles, M.D.; Eugene A. Stead, Jr., M.D.

## Required Courses

**MED-204. Introduction to Clinical Medicine:** This seven week course occurs in late summer following the completion of the first year basic science curriculum. It is short but intensive and designed to provide the necessary skills and knowledge basic to function in a clinical environment. The three major areas that are covered include: (1) history, physical examination, problem formulation; (2) laboratory diagnosis, and (3) radiology diagnosis. In each of these three areas, didactic materials are presented in a morning lecture format and are complemented by afternoon sessions in smaller groups with "hands on" experience. The course also includes a brief introduction to the topic of human sexuality.

The morning lectures for the patient interaction part of the course concentrate on various organ systems and outline the salient historical features of normality and disease as well as the physical examination features pertinent to the organ system. Two afternoons each week, small student groups interact with one instructor, interview, examine, present, and write up patients from the wards at Duke and the VA Medical Center. During these patient oriented sessions, skills and techniques necessary for history taking, physical examination, bedside presentations, problem formulation, and writing up findings are introduced and practiced.

The purpose of the laboratory diagnosis portion of the course is to teach the concepts and technical skills necessary for the use of the laboratory in evaluating and managing patients. It consists of a series of morning lectures and afternoon laboratory sessions stressing the intelligent use of the laboratory in clinical medicine and presented in a disease-oriented format. The lectures summarize difficult topics not easily gleaned from reading the background materials or handouts. The laboratory sessions are designed to serve two purposes: to allow acquisition of the basic psychomotor laboratory skills needed routinely in clinical medicine, such as venipuncture, cell counting, performance of ECGs and microscopic examination of urine and blood; and to provide an opportunity for small instructor-led groups to discuss the relevance of actual laboratory data to clinical practice.

The aim of the radiology diagnosis portion of the course is to introduce students to the radiographic appearances of common diseases that they will encounter during their clinical years. The principles rather than the details of radiographic interpretation are stressed in a series of morning lectures and afternoon laboratory sessions. In general, two lectures are devoted to each subspecialty area, e.g., chest radiology and neuroradiology, and these are usually scheduled to coincide with the corresponding lectures in physical and laboratory diagnosis. The laboratories are given to groups of fifteen to twenty students, and involve discussion of radiographs at the viewbox. The labs are generally designed to amplify and extend the content of the lecture material. The emphasis is on



an informal discussion with considerable interaction of teacher and students. Most of the course material is related to the analysis of radiographs from the basic areas of radiology (chest, bone, gastrointestinal, urologic, and pediatric); with less emphasis on the more specialized areas (neuro, vascular, ultrasound, computed tomography, and nuclear medicine). Students will be expected to develop an understanding of how to analyze the common basic radiographic abnormalities that they will see during their second year clinical clerkships. The limited introduction to the more specialized areas provides information as to how the new imaging modalities should be applied in the diagnostic investigation of patients.

The human sexuality portion of the course provides a didactic introduction to the psychological and physiologic aspects of sexual response and sexual dysfunction that are commonly encountered in clinical practice. The treatment of sexual dysfunction, with emphasis on behavioral methods, along with other approaches to marital and sexual dysfunction are also discussed.

At the end of the course, the students are tested via a written and practical examination in radiology and laboratory medicine and both a written and practical examination on the history, physical examination, and problem formulations. Also contributing significantly to the final evaluation is individual student performance during the afternoon ward sessions.

**MED-205. Medicine.** The second year course in medicine is aimed at providing the student with the basic tools used in the practice of medicine. This is the time when he or she should consolidate the material learned during the first year and apply it to the study of his or her own patients. During a brief eight-week course it is not possible to cover systematically the entire body of knowledge of internal medicine; instead, the student is provided a series of representative learning experiences based on the case study method. Our goals are to teach a method of approach to the patient and to provide a firm foundation for the solution of new medical problems as they are encountered in the months and years ahead. Specific expectations of the sophomore student are: (1) The student will perform and record a history and physical examination on each patient he or she admits. The first two weeks on the rotation the student will admit one patient per week; thereafter he or she will admit three patients per week. (2) The student will perform an independent history and physical examination on the patient. After the resident has completed the patient assessment, the student should present to the resident. They should then go back to the bedside to check any discrepancies in either the historical or physical examination findings. The resident will review the workup and discuss the presentation of the patient with the student on the night of admission or at a time before formal patient presentation. (3) A complete work-up will also include an analysis of the peripheral blood smear and urine sediment on all patients. (4) The student should prepare for case presentations by reading the relevant section in one of the standard textbooks of medicine. (5) The student's complete workup should be in the chart within twenty-four hours of admission and should be in the format provided. (6) The student should take responsibility for patients as the primary care person and is expected to follow his or her patients daily and include progress on the chart.

He or she is responsible for knowing what therapeutic interventions and/or diagnostic tests have been performed and the outcome of these maneuvers. (7) The student is encouraged to participate in all diagnostic procedures, such as lumbar punctures or thoracenteses, on his or her patients. Where appropriate, the student will perform these procedures under the supervision of the house staff. (8) Daily work rounds with the house staff are mandatory and the student is expected to be sufficiently knowledgeable to participate in patient care decisions. Attending rounds cannot be missed without the prior permission of the attending physician. (9) The student is expected to present patients to attendings within twenty-four hours after admission and to know rationale for patient workup as well as pertinent specific medical information. (10) There will be an oral examination for all second year students during the final week of the rotation. The student

will be expected to demonstrate skills in taking histories and performing physical examinations. (11) Students should attend all conferences (noon, etc.) unless ward duties preclude.

**MED-207. Neurology.** The second year course in neurology provides the student with a firm understanding of the neurological examination, formulation of clinical neurological problems, and practice with written and oral communications in a hospital setting. The student has the opportunity to apply the neuroanatomy, neurophysiology, neurochemistry, and neuropathology learned in the first year to the evaluation and care of his or her patients. Each student is assigned two patients in the first week and three patients in the last three weeks. The patients are drawn from the neurology services at Duke Hospital or the Durham VA Medical Center. The students elicit a history and perform a physical examination under the supervision of neurology faculty. The student records the findings in the hospital charts and presents the findings at regular staff rounds. The student then participates with a clinical team of faculty and house officers in the hospital evaluation of the patients. The student is encouraged to participate in all diagnostic procedures such as lumbar puncture. The student has the opportunity to follow patients through neuro-radiological and neuro-surgical procedures forming part of evaluation and treatment.

The specific expectations for the sophomore student are: (1) to perform and record a competent neurological and history examination on each admitted patient, (2) to be competent in the hospital management of neurological patients including diagnostic evaluations such as hematological and urine evaluations, lumbar puncture and appropriate electrical studies, (3) to assume responsibility as the primary care person for his or her patients, to include daily progress notes on hospital charts, and to be familiar with the results of all therapeutic interventions and diagnostic tests performed on his patients, (4) to participate in daily work rounds with an assigned team of house officers and faculty, (5) to be sufficiently knowledgeable to participate in patient care decisions, (6) to attend faculty attending rounds and to present his patients to faculty within twenty-four hours after admission, and (7) to participate in neurology service rounds and conferences during the course.

The course includes faculty lectures. A written evaluation is provided to the students by faculty and house staff. There is no examination.

This course is usually taken in conjunction with CFM-207.

## Electives

**MED-210 (C). Advanced General Medicine: Duke/Durham Veterans Administration Medical Center.** Course Goals: To expand the experience and knowledge gained during the second year medicine clerkship by: (1) Primary—Providing additional experience in the management of hospitalized patients with a wide variety of general internal medical problems. (2) Secondary—Developing a comprehensive understanding of the pathophysiology of the common problems encountered on an internal medicine inpatient service. This course is recommended for students who receive straight pass in MED 205. How Goals Will Be Achieved: Students will be assigned to one of the general medical wards at either Duke or the Veterans Administration Medical Center. They will be assigned patients in rotation with the second-year students on the service and will be expected to perform and complete an initial evaluation, develop a care plan, write the orders (to be countersigned by the intern), present the patient at teaching rounds and follow the patient throughout the hospital course. Students will be assigned approximately three patients per week and will be expected to do outside reading on each. The student may be advanced to the subinternship level during the eight-week period on the recommendation of the chief medical resident. Methods of Evaluation: Students will be evaluated by their intern, resident, and senior staff attending. The evaluation form will be made available to each student at the beginning of the rotation. No final exam is given. Requests

for Duke or Durham VAMC rotation will be accepted on a first come, first served basis (call 681-2255). Weight: 8. *Greenfield and staff*

**MED-211 (C). Internal Medicine Subinternship: Duke/Durham Veterans Administration Medical Center/ Durham County General Hospital.** Course Goals: To provide an internal medicine patient care experience at the intern level. How Goals Will Be Achieved: Students will be assigned to one of the two inpatient services at either Duke, DVAMC, DCG hospitals supervised by a second or third year internal medicine resident. The student will function as an intern on that service with the exception that orders must be countersigned by a medical house officer. No other medical intern will be assigned to those patients handled by the subintern. The number of patients assigned will be determined by the supervising resident with anticipated increases during the four week period. Methods of Evaluation: Students will be evaluated by their resident and senior staff attending. The evaluation form will be made available to each student at the beginning of the rotation. No final exam is given. Prerequisite: Available only to Duke medical students who receive honors or pass + in MED-205. Requests for Duke or Durham VAMC rotation will be accepted on a first come, first served basis (call 681-2255). Weight: 4 or 8. *Greenfield and staff*

**MED-212 (C). Tutorial in General Internal Medicine.** Course goals: (1) Primary to expand exposure to general internal medicine. (2) Secondary to focus and develop physician-patient interactive skills using private in- and outpatients. How Goals Will Be Achieved: Students will work in a one-to-one relationship with one of the faculty members of the Division of General Internal Medicine involved in the daily care of patients. Activities include working up and developing plans for evaluation and therapy as well as presenting inpatients and outpatients in the Medical PDC. This eight-week offers an expanded opportunity for exposure to general internal medicine problems. Methods of Evaluation: The preceptor will observe the student's interaction with patients and the quality of the work-ups including the follow-up care plans and their implications. Prerequisites: Approval of the students by preceptor. Weight: 4. *Neelon and Feussner*

**MED-213 (C). Tutorial in Medical Private Diagnostic Clinic (MPDC).** Course Goals: (1) Primary—to broaden student exposure to ambulatory care in internal medicine and understanding of outpatient evaluation of disease. (2) Secondary—to develop the student's doctoring skills by focusing on the physician-patient interactive skills using private or public outpatients. How Goals Will Be Achieved: Students will work in a one to one relationship with one of the faculty members in the Department of Medicine who sees patients regularly in the MPDC. Students will complete the initial work-up of patients and develop plans for treatment and follow-up care in consultation with the preceptor. They may follow patients admitted to the hospital. The student may choose to spend time in both the acute care clinic and seeing private patients with an attending of their choice. The patients may be general medical patients or patients within their attending's subspecialty. Students will also gain an understanding of the effectiveness of evaluation of patients on an outpatient basis. Methods of Evaluation: The preceptor will observe the student's interaction with patients and the quality of the work-ups including follow-up care plans and their implementation. Prerequisites: Approval of students by preceptor. Weight: 2-4-8. *Greenfield and staff*

**MED-215 (C). Combined Medical Specialties Unit Clerkship (CMSU).** This eight week clerkship on the CMSU is designed to improve students' understanding of clinical problems in psychosomatic medicine. Students will admit patients with housestaff and manage them through their hospitalization. Several lectures and conferences complement the clinical work. Course Goals: (1) Primary—to expand the student's knowledge of an experience with the understanding of clinical problems in psychosomatic medicine. (2) Secondary—to improve diagnostic and therapeutic interviewing skills. In addition it is expected that the student will develop a more effective use of the multidisciplinary

medicine, psychiatry, psychology) therapeutic interventions available in the CMSU setting. How Goals Will Be Achieved: Students will work with the CMSU ward team admitting patients on rotation every third night. The student will follow these patients throughout their hospitalization in close cooperation with the housestaff. Responsibilities will include initial evaluation and orders (countersigned by housestaff) as well as development of diagnostic and therapeutic plans in coordination with attending and housestaff. Regular didactic lectures on topics related to diagnosis and management of patients with psychosomatic problems will be given by attending staff. In addition, four conferences per week will be devoted to interviewing patients and the development of formulations and therapeutic plans. During this eight-week rotation, the student will be encouraged to become involved in-depth with one or more of the therapeutic modalities frequently utilized on the CMSU. Methods of Evaluation: The preceptor and the housestaff will observe and evaluate the student's performance working with patients. Weight: 8. *Neelon, Feldman, and Brooks*

**MED-220 (C). Emergency Room.** Course Goals: (1) Primary—provide a broad exposure to the Emergency Room and to clinical problems, emphasizing acute internal medicine, in such a way that students can see patients before any other physician contact permitting the learner to make diagnoses and plan short-term work-ups. (2) Secondary—gain in ability to rapidly obtain history; shortening of time required to do accurate physical examination; enhancement of dexterity in performing minimally invasive procedures. How Goals Will Be Achieved: Each student works in rotation with nine different residents (not interns [three rotating shifts of three JARs]) and is on twenty-four hours/off twenty-four hours, then on twelve hours/off thirty-six hours. Students sleep in every fourth night and average working about seventy hours per week. In collaboration with the residents, or senior staff the student will be involved in diagnostic procedures and interpretation of studies before planning management of illness with some opportunities to supervise subsequent care for up to twenty-four hours. Thus, the students can test their ability to make diagnoses and plan acute studies. Didactic sessions, held twice weekly, cover clinical topics related to emergency medicine and complement a daily morning report. Students electing the eight-week rotation double their experience in acute care medicine including practice in interviewing/diagnostic skills as well as psychomotor coordination for procedures while working with several different resident teams. Methods of Evaluation of Student Performance: Residents and senior staff will evaluate the student's gain in rapidity of doing history/physical examinations, increased dexterity in performance of minimally invasive procedures, and increase in knowledge and skill to interpret/present data to others. Prerequisites: None are mandatory; prior experience in other electives will be beneficial. Weight: 4 or 8. *Silberman*

**MED-223 (C). Intensive Care Medicine Subinternship, Duke.** Course Goals: (1) Primary—to introduce the student to a pathophysiologic approach to critically ill adults. (2) Secondary—to provide an opportunity for students to perform selected procedures. How Goals Will Be Achieved: Students will function as subinterns in a very active intensive care unit. Patient evaluations, procedures, diagnostic planning and treatment planning are performed by students under the direct supervision of the junior assistant resident, pulmonary fellow, and attending physician. Night call occurs every other or every third night. Regular didactic lectures on topics related to the diagnosis and treatment of the critically ill will be given by the attending staff. The physiological and biochemical approach to critical care medicine is stressed. A syllabus of selected reprints from the critical care literature is provided to each student. Emphasis is placed on access to attending physicians and pulmonary fellows for the discussion of specific patient-oriented questions. Preferences for the month of rotation will be honored if possible. Questions should be directed to Dr. Fulkerson, 681-5850. Methods of Evaluation: Each student's performance is assessed by the unit director through direct observation of the student in the clinical

and didactic environments. Input from the residents, fellows, and other attending physicians is also obtained. Weight: 4. *Fulkerson and pulmonary staff*

**MED-224 (C). Intensive Care Medicine Subinternship, Durham Veterans Administration Medical Center.** Course Goals: (1) Primary—to provide training in clinical physiologic and pharmacologic principles of the care of the critically ill. (2) Secondary—to develop skill in performance and interpretation of diagnostic procedures. How Goals Will Be Achieved: Under the supervision of junior assistant residents and a pulmonary fellow, the student will function as a subintern and will be responsible for patient workups and daily bedside presentations. Students are given responsibilities for procedures and decision-making in direct proportion to the development of their patient management skills. Daily attending rounds stress an integrated physiologic approach to the management of critically ill patients with emphasis on acute respiratory care, hemodynamic monitoring, acid-base balance and nutritional support. Each student is provided with a syllabus of selected readings that supplements regular didactic sessions on diagnoses, pathophysiology, and management of critical illness. Student on call schedule is every third night for the duration of this four-week course. Students may obtain information by telephoning 286-6946 or 684-6143, and should arrange for a replacement if they subsequently drop the course. Methods of Evaluation: Student evaluations are done by the fellows and faculty attending on the MICU and are based on observed performance. Weight: 4. *Piantadosi and pulmonary staff*

**MED-230 (C). Pulmonary Medicine.** Course Goals: (1) Primary—to provide training in clinical aspects of allergy and respiratory medicine. (2) Secondary—to provide experience with pulmonary and allergy laboratory techniques including pulmonary function testing, chest radiology, bronchoscopy and evaluation of allergic disorder. How Goals Will Be Achieved: Students will be assigned to the pulmonary/allergy consult services at either the Veterans Administration Medical Center or Duke Hospital. They will have primary responsibility for workup and presentation of selected patients on these services. All patients are presented and followed at daily rounds with fellows and faculty. Students will also participate in a half day outpatient clinic each week. Joint seminars and conferences involving both the Duke and VAMC consult services are held each week to provide instruction in allergy, clinical immunology, pulmonary function evaluation, pulmonary physiology, chest radiology, pulmonary pathology and clinical pulmonary medicine. Methods of Evaluation: Student evaluations are done by fellows and faculty assigned to the consult services during the period of the course and are based on observed performance. Weight: 4. *Crapo and pulmonary staff*

**MED-231 (C). Clinical Allergy-Immunology.** Course Goals: (1) Primary—precepted instruction in the critical use of medical laboratory information. (2) Secondary—familiarization of the student with the clinical uses of the allergy-immunology laboratory. How Goals Will Be Achieved: The consultative role of the allergy-immunology laboratory is used to focus critical awareness on the clinical utility and pitfalls of measures of immunity. During the first several weeks the student will clinically evaluate selected patients with impaired immunity (impaired resistance to infection, hypersensitivity, autoimmunity, neoplasia, or other immunologic problems) from the clinic and/or consultative service. The student will have an opportunity to participate in the immunologic studies applicable to assigned patients. This clinical experience is used to identify a mutually acceptable topic for selected readings and weekly discussions of either a laboratory procedure or immunologic alterations associated with an immune disease. These readings and discussions provide the basis for a required technical report. The content of this short (ten to twenty double spaced typed pages, excluding references) critical report of current knowledge is focused on the utility of either a specific laboratory procedure or the value of laboratory studies in the care of patients with a specific immune disease. Methods of Evaluation: The student's understanding and ability to use the information reviewed and the content of the technical report are used to evaluate student performance.

Prerequisite: approval of the course director. Weight: 8. *C. E. Buckley*

**MED-232 (C). Pulmonary Medicine Subinternship (Asheville Veterans Administration Medical Center).** Course Goals: (1) Primary—experience in management and assessment of pulmonary diseases. (2) Secondary—exposure to and assistance in special procedures in pulmonary medicine, such as PFTs, arterial punctures, thoracentesis and bronchoscopy. How Goals Will Be Achieved: Students will perform the initial work-up on selected patients admitted to the pulmonary service at the Asheville Veterans Administration Medical Center and participate in patient centered daily work rounds and weekly chest conferences. In addition, there will be informal lectures on pulmonary subjects such as history taking, physical examination, PFTs and arterial blood gases (theory vs. practice), chest radiography, COPD and asthma, lung cancer, pneumonias, pulmonary TB, pulmonary emboli, occupational lung disease, respiratory failure, and pleural effusion. Optional activities may include participation in a pulmonary clinic and pulmonary medical night call. Method of Evaluation: The instructor evaluation will be based on observation of the student's daily performance using the standard Duke Department of Medicine evaluation form. Weight: 4. *Elliston, and Rotman*

**MED-240 (C). Clinical Cardiology.** Course Goals: (1) Primary—to develop proficiency in obtaining and understanding the cardiovascular history and bedside examination and interpreting a routine electrocardiogram and chest X-rays. (2) Secondary—to develop an understanding of the pathophysiology of heart disease, the use of noninvasive (echo-Doppler, exercise testing, radionuclide imaging, ambulatory ECG monitoring) and invasive (cardiac catheterization and invasive electrophysiologic) technologies, data banking, and the role of the cardiovascular consultant in patient evaluation and treatment. How Goals Will Be Achieved: When student enrollment is more than four, a core curriculum of didactic lectures and patient/cardiology patient simulator (HARVEY) teaching sessions occurring from 11 A.M. to 1 P.M. Monday through Friday, throughout the eight weeks. Students will also be assigned to work with HARVEY on their own in small groups at other times during the day. When enrollment is four or less, the patient/simulator sessions will occur but didactic sessions will be abbreviated. For their clinical experience, Students will be assigned to two sequential four-week patient centered experiences: a clinical evaluation subrotation, and a patient care subrotation. During the clinical evaluation subrotation, the student will be assigned to either Duke (consult service or electrophysiology service) or the VAMC and will be responsible for interpreting electrocardiograms, performing cardiology consultations, and evaluating patients in preparation for cardiac catheterization. During the other four-week experience, the students will be assigned to either Duke, VAMC, or DCG Coronary Care Unit, or to a private attending cardiologist as a subintern. On the CCU, the student will work in close cooperation with CCU staff and in the evaluation and management of patients with acute cardiovascular illnesses. As a subintern, the student will be responsible for evaluation and management of patients in concert with the intern, fellow, and senior staff physician. An opportunity to certify/recertify in basic cardiac life support will also be offered. Students wishing to drop this elective must do so at least two weeks prior to the starting date. Subsequently, no drop will be permitted unless the student provides a replacement for that slot. Methods of Evaluation: Students will be evaluated by all residents and senior staff with whom they work. The evaluation questionnaire will be made available to the student at the beginning of the clerkship. At the end of the course, students will also be objectively evaluated by a written test and by a practical examination on HARVEY. Weight: 8. *Waugh and cardiology staff*

**MED-241 (C). Preventive Cardiology: Clinical Applications.** Course Goals: (1) Primary—to teach students the clinical applications of newer knowledge of preventive cardiology. (2) Secondary—to teach students how to assess their own cardiovascular risk status and means for its modification. How Goals Will Be Achieved: The course is given once every eight weeks and is organized around weekly didactic sessions and discussions of clinical cases. In addition, problem sets and a comprehensive reading list augment the

classroom session. Several Duke faculty members as well as outside speakers from different clinical disciplines participate in the course. Some of the topics discussed include “risk factor” modification (such as clinical management of hyperlipidemia and hypertension, behavior modification, and smoking); secondary prevention by early diagnosis of coronary artery disease (CAD) using new technologies; tertiary prevention by maximum rehabilitation. Such issues as the pros and cons of surgical vs. medical approaches to CAD are examined not only in terms of scientific knowledge but also in economic terms. Methods of Evaluation: (1) Quality of the student’s classroom discussions demonstrating the extent of prior reading and (2) an examination. Weight: 1. *Morris and staff*

**MED-242 (C). Clinical Arrhythmia Service.** Course goals: (1) Primary—to provide students with an in-depth exposure to the diagnosis and management of cardiac arrhythmias, electrophysiologic studies, and cardiac pacemakers, and to allow them to understand the intracardiac events that result in ECG changes. This course is not designed to be a substitute for the general cardiology elective (240C). (2) Secondary—to familiarize the student with certain basic techniques of arrhythmia diagnosis such as esophageal recording and pacing. How Goals Will Be Achieved: The student will spend four weeks working on the clinical arrhythmia service. The student will make rounds with the clinical electrophysiology service on inpatients with arrhythmia problems. The student will attend electrophysiologic studies and assist in the analysis of data from these studies. The student will be responsible for the work-up of patients admitted to the arrhythmia service as well as inpatient consults, and will play an important role in the follow-up of these patients while they are in the hospital. The student will also see outpatients during arrhythmia clinic that meets Friday mornings in the PDC. The student will assist in the evaluation of patients for permanent pacemaker implantations. Students will be responsible for reviewing the literature on subjects related to the patients that they have seen on the clinical service. Methods of Evaluation: Students will be evaluated on their clinical skills in taking histories, performing physical examinations, as well as in their presentation and assessment of the patient’s problem. They will also be assessed on their ability to read and understand the relevant literature, and they will be assessed on their ability to assume a responsible role in the operation of the clinical arrhythmia service. Weight 4. *Wharton, Pritchett, Hurwitz, and Packer*

**MED-243 (C). Cardiology Subinternship (Asheville Veterans Administration Medical Center).** Course Goals: Primary—to provide experience in the assessment and management of patients with acquired heart disease. Secondary—the familiarization of the student with both invasive and non-invasive procedures available at this medical center. How Goals Will Be Achieved: The student will be assigned to an attending cardiologist and be expected to work-up patients presenting to both the coronary care unit and the cardiology nonacute ward. Daily work rounds will commence at 7:30 A.M. with teaching rounds beginning at 3:30 P.M. on Monday, Wednesday and Friday. In addition, daily interpretation of electrocardiograms, stress tests, Holter monitors and echocardiograms will focus on student teaching. Cardiac catheterization results will also be reviewed on a daily basis as well as summarized in a weekly cardiac surgery conference. Night call will be optional, but students may elect to take call with appropriate attendings. Method of Evaluation: The preceptor will evaluate the student’s ability to assess patient problems based on the history and physical and formulate a plan to evaluate the problems. Furthermore, the preceptor will assess each student’s ability to evaluate and act upon data derived from both invasive and noninvasive diagnostic methods. Weight: 4. *Miller and Puram*

**MED-250 (C). Clinical Dermatology.** The purpose of this course is to train the student to notice and recognize both crucial, as well as trivial, dermatological physical findings so that the student may be able in the future to: (1) describe physical findings in the skin accurately; (2) formulate a reasonable differential diagnosis based on what the student sees; (3) know when biopsy or referral is indicated; (4) prescribe appropriate therapy. The skin mirrors the health of the individual. Important clues to significant health

problems are frequently overlooked by the uninitiated. Frequently a mere look at the patient by an experienced diagnostician is more fruitful (and far more cost effective) than any battery of diagnostic studies. Sherlock Holmes said it well, speaking to Watson, who was once again amazed at the insight of Mr. Holmes: "I see no more than you do, but I have trained myself to notice what I see". We hope to train the student to notice what he or she sees. Students on the rotation will spend two weeks in the Duke clinics and two weeks at the Veterans Administration Medical Center. While at Duke, students will rotate through private dermatology clinics, public dermatology clinics, dermatologic surgery clinics, and various sub-specialty clinics. At the VAMC, there will be two major outpatient clinics each week supplemented by daily acute care clinic/screening clinic/ER walk-in consultations. Students will also participate in the inpatient consult service at the VAMC and will assist in supervising care of inpatient dermatology patients. There is no night call or weekend call on the rotation. The visual experience of the clinic is supplemented with canned lectures and teaching conferences. The most interesting cases from the VAMC experience are presented weekly at a Thursday morning breakfast conference. The most interesting cases from the Duke experience are presented weekly during Friday afternoon Gallop Rounds. Dr. Callaway, our Emeritus Professor, occasionally hosts a luncheon/slide show. The ward attending discusses various aspects of dermatology in detail at a Tuesday morning conference. The majority of the teaching is one-on-one. Student evaluations are based on subjective responses of faculty and residents. Enthusiasm is strongly rewarded. A brief objective examination is given at the end of the course that will not adversely affect (but may improve) the final grade and is intended chiefly to provide feedback to the course director. The course design changes frequently. The student is urged to discuss any special needs, desires, or conflicts with the course director, who may be reached at 684-5037. Please report to the dermatology clinic, room 0227, orange zone at 0830 the first day of the rotation for further orientation and clinic assignments. Weight: 4. *Burton*

**MED-251 (C). Lectures and Demonstration in Clinical Dermatology.** Course Goals: The primary goal is to become familiar with the clinical presentation and pathophysiology of dermatological disorders and their management and treatment. How Goals Will Be Achieved: The course will be presented over an eight week period with three lectures weekly, using 35mm. Kodachromes. Clinical assessment will be emphasized by presentation of patients with common, as well as unusual, skin disorders one half day per week. Methods of Evaluation: A test given at the end of the course will be used to assess knowledge gained from lectures and attendance at clinical presentations is required. Weight: 2. *Olsen and dermatology staff*

**MED-260 (C). Gastroenterology.** Course Goals: (1) Primary—to provide experience with digestive diseases from which the student can develop a sound fundamental approach to the diagnosis and management of these problems and to enable scholarly growth from subsequent experience. (2) Secondary—to provide an environment that will stimulate questions concerning digestive diseases and attract students with a research interest into the field. How Goals Will Be Achieved: Participation in the care (work-up and management) of patients hospitalized on the general wards of Duke or VA Medical Centers or on the gastroenterology unit at Duke South under the guidance of the resident and fellowship staff and under the direction of faculty members assigned either to the VAMC Consultation Service, Duke South Inpatient Service, or Duke Consultation Services. The students' experience may include direct participation in the activities of the clinical laboratory of the Division of Gastroenterology. This laboratory offers specialized tests and/or procedures necessary for the state of the art care of patients with digestive diseases; for example, biochemical tests include measurements of gastric secretion and analysis of dietary fat absorption, immunoassays include measurements of serum gastrin and trypsin. Procedural activities range from upper endoscopy and endoscopic retrograde cholangiopancreatography to endoscopic colon polypectomy and endoscopic ampulla of Vater papillotomy. Morphologic and physiologic data derived from these and other



laboratory studies are discussed in the context of specific patient problems in several weekly rounding and conference settings. Students have an opportunity to interact with all the faculty of the division at morning rounds and other conferences where patients from all of the services (Duke and VAMC) are discussed. Rounds on patients with liver disease are held separately. Methods of Evaluation: Student evaluation forms are completed by the resident, fellows and faculty working with the student on individual patient care services. Final evaluation represents a composite of these forms that chiefly identify clinical skills, fund of basic information, organizational ability and degree of interest and participation. Weight: 4. *Taylor and gastroenterology staff*

**MED-270 (C). Outpatient Hematology-Oncology (Duke).** Course Goals: The primary goal is to give the student experience in the diagnosis, long-term treatment, and supportive care of patients with hematologic and oncologic disorders in the outpatient setting. How Goals Will Be Achieved: On one half day each week the student will see and take part in the care of patients with these disorders under the supervision of staff personnel. (The course is offered over eight or preferably sixteen weeks.) Methods of Evaluation: Students will be evaluated by their preceptors on the basis of their ability to obtain a history, perform a physical examination, evaluate hematologic and other laboratory data, integrate these data, and propose assessments and plans of action. Weight: 1-2. *Rosse, Bast, and hematology/oncology staff*

**MED-271 (C). Outpatient Hematology-Oncology (Durham Veterans Administration Medical Center).** Course Goals: The primary goal is to give the student experience in the diagnosis, long-term treatment and supportive care of patients with hematologic and oncologic disorders in the outpatient setting. How Goals Will Be Achieved: On one-half day each week, the student will see and take part in the care of patients with hematological and oncological diseases in the outpatient setting. (The course is offered over eight or preferably sixteen weeks.) Methods of Evaluation: Students will be evaluated by their preceptors on the basis of their ability to obtain a history, perform a physical examination, evaluate hematologic and other laboratory data, integrate these data and propose assessments and plans of action. Weight: 1-2. *Weinberg and hematology/oncology staff*

**MED-272 (C). Clinical Hematology and Oncology (Duke).** Course Goals: The primary goal is teaching the diagnosis and treatment of patients with hematologic and oncologic diseases. How Goals Will Be Achieved: Patient contact is stressed in various roles including those as outpatient, inpatient, and consultant physician. The diagnostic techniques used in assessing hematologic and oncologic diseases are stressed and the basic understanding of the pathophysiology of hematologic and oncologic diseases is provided. Two types of experience are offered: (1) the Consult Service in which the student sees the patient in consult on Wards 81-83 and reviews the diagnostic and therapeutic data with a consultant and (2) the Private Inpatient Service in which the student takes part in the care of the patients of one of the private physicians. Outpatient experience is provided for both types of experience. Four week students may select either experience while those electing an eight week rotation will have both types of experiences. Methods of Evaluation: Students will be evaluated by their preceptors on the basis of their ability to take a history, perform a physical examination, evaluate hematologic and other laboratory data, integrate these data, and propose assessments and plans of action. Weight: 4 or 8. *Rosse, Bast and hematology/oncology staff*

**MED-273 (C). Clinical Hematology and Oncology (Durham Veterans Administration Medical Center).** Course Goals: The primary goal is teaching the diagnosis and treatment of patients with hematologic and oncologic diseases. How Goals Will Be Achieved: As a member of the section, the student actively participates in the following: (1) hematology-oncology consultation service for the VAMC wards, (2) hematology-oncology outpatient clinics, (3) management of disorders including leukemias, lymphomas, anemias, bleeding disorders, gammopathies, etc. An opportunity is provided for the student

to learn and perform the specialized clinical and laboratory techniques involved in the evaluation of these patients. Ample time is available for contact with the hematology staff and library research. Students electing an eight week experience will function as subinterns for the second four weeks with a commensurate increase in responsibilities and duties in both the inpatient and outpatient arenas. **Methods of Evaluation:** Students will be evaluated by their preceptors on the basis of their ability to obtain a history, perform a physical examination, evaluate hematologic and other laboratory data, integrate these data, and propose assessments and plans of action. **Weight:** 4 or 8. *Weinberg and hematology staff*

**MED-274 (C). Medical Subinternship in Hematology-Oncology.** **Course Goals:** This is an intensive course in the medical care of patients with hematologic and oncologic disorders. **How Goals Will Be Achieved:** The student will be given considerable responsibility, under supervision, in the care of inpatients either in Duke North or on Jordan Ward. They will receive instruction and experience in diagnostic and therapeutic procedures, the pathophysiology of the diseases in question, and the use of drugs and their interactions and the interactions of patients and their families. **Methods of Evaluation:** Students will be evaluated by their preceptors on the basis of their ability to obtain a history, perform a physical examination, evaluate hematologic and other laboratory data, integrate these data, and propose assessments and plans of action. **Prerequisite:** Approval of faculty based on prior performance. **Weight:** 4. *Rosse, Bast and hematology/oncology staff*

**MED-275 (C). Clinical Coagulation.** **Course Goals:** (1) to familiarize students with coagulation laboratory testing and their application to clinical problems. (2) to give students in-depth exposure to clinical coagulation disorders, and to acquaint students with recent advances in the area of coagulation research. **How Goals Will Be Achieved:** The student will spend four weeks working directly with Dr. Charles Greenberg, Director of the Coagulation Lab. Each morning the student will meet for one-half hour and discuss an important topic in clinical coagulation. Then students will review the abnormal results from the coagulation laboratory worksheet and make rounds on selected patients. The student will be expected to work up each patient referred to the coagulation service. A clinical coagulation conference will be held every other week and the student will present at least one case. A clinical research project will be given to every student that will teach them how to critically evaluate laboratory tests. Students electing an eight-week rotation will have a more extensive research experience. **Methods of Evaluation:** Will be based upon observation of ability to take careful histories and physical examinations; by clinical presentations and assessments; by demonstrating increase in knowledge about laboratory tests and their application to clinical problems. **Weight:** 4 or 8. *Greenberg*

**MED-276 (C). Oncology Subinternship (Asheville Veterans Administration Medical Center).** **Course Goals:** To provide the student with a broad experience in the medical management of oncology patients including initial diagnostic evaluation, planning and monitoring of therapy and supportive care. Nonmalignant hematologic problems (mainly anemia and coagulopathy) will also be covered. **How Goals Will Be Achieved:** The student will do admission work ups, write orders and serve as the primary care provider for selected oncology patients and hematology patients under the supervision of the Chief of Oncology, Veterans Administration Medical Center. Didactic sessions will be provided by medical and nursing staff on various aspects of cancer and its treatment and complications and be instructed to do bone marrow aspiration and biopsy and review peripheral and bone marrow smears. The student will participate in the biweekly oncology clinic and evaluate inpatients with anemia or coagulopathy on a consultative basis under staff supervision. **Method of Evaluation:** Chief of Oncology Service will evaluate student with standard Duke Department of Medicine evaluation forms. **Weight:** 4. *Puram and Patel*

**MED-280 (C). Clinical Infectious Diseases.** **Course Goals:** To provide experience in the clinical and laboratory diagnoses of infectious diseases and in their therapy. The

primary emphasis will be placed on learning from interaction with patients, resident staff and faculty on the consultation service. Students are expected to work up assigned patients by interviews, physical examination, and collation of laboratory results, leading to a summary and synthesis of the problem. Particular emphasis will be placed on close follow-up of the patients during hospitalization, including attendance at procedures or operations whenever possible. Students should know their own patients well enough to be able to give a reasonable presentation on ward rounds or at conferences without notice. Students will be expected to read in-depth standard texts about their patients' problems, including a few recent relevant primary references. Students are expected to attend the various conferences listed on the weekly schedule of division activities punctually, including microbiology plate rounds, Journal Club, and tutorials. They will be asked to present cases and provide some discussion at the Thursday VAMC conference, and to present cases as requested by Dr. Osterhout at his teaching conferences (MIC-339B). Each student should be prepared to present and briefly discuss one article that he or she considers to be interesting and timely at Journal Club. Methods of Evaluation: Each student's performance will be evaluated and graded by the resident, fellow and attendings using the usual "honors," "pass plus," "pass," "deferred," or "unsatisfactory" system. In arriving at a consensus, appropriate emphasis will be placed on knowledge, enthusiasm, and evidence of improvement during the rotation. There will be no written examination. No other courses are to be taken in conjunction with MED-280. Adds will be accepted at any time providing the course has not been filled. Because this course is usually oversubscribed, drops will not be accepted within thirty days of the first day of classes unless the student finds his own replacement. Weight: 4. *Durack and infectious disease staff*

**MED-281 (C). Infectious Diseases Subinternship (Asheville Veterans Administration Medical Center).** Course Goals: Familiarizing students with the methods for diagnosing and managing patients with a wide variety of infectious diseases and allowing students to participate in basic techniques used to evaluate clinical specimens in the Clinical Microbiology Laboratory. How Goals Will Be Achieved: By allowing students to become involved in the initial evaluation of patients referred for infectious disease consultation and by discussing their diagnostic and management concepts with the course director. Students will also have a daily exposure to the Clinical Microbiology Laboratory where the basic techniques will be demonstrated and relevant culture material will be reviewed. Students will be provided with appropriate reference material and will be expected to refer to these sources regularly. Each student will also have several opportunities during the rotation to prepare and present more in-depth discussions on particular cases or problems they have evaluated. The course director will also provide at least weekly conferences to the student group on relevant subject matter. Method of Evaluation: Student performance will be assessed by the course director based on the student's fund of medical knowledge, ability to carry out an appropriate physical examination, ability to construct an appropriate differential diagnosis, ability to plan a clinical evaluation and arrive at a reasonable plan for management and ability to relate to patients and colleagues. Weight: 4. *Ribner and staff*

**MED-290 (C). Metabolism and Endocrinology.** Course Goals: (1) Primary—the student will have an in-depth experience in evaluation and management of patients with endocrine disorders. (2) Secondary—The student will learn basic principles of hormone physiology and apply these concepts in clinical settings. How Goals Will Be Achieved: Each student will be introduced to patient problems by working with a faculty preceptor (Drs. Burch, Dunn, Ellis, Feinglos, Johnson, or McPherson). Prior arrangements may be made with a particular faculty member or students may be assigned to a preceptor at the beginning of the rotation. Each student will be exposed to clinical endocrine disorders by seeing patients on the inpatient endocrine service, the inpatient consult service and in the outpatient clinics. The student will have the opportunity to explore, through reading and conferences, the mechanism of hormone production and the physiologic conse-

quences of hormone interaction with target tissues. Division conferences including grand rounds, journal club, research seminar, inpatient attending rounds and consult rounds provide the opportunity to integrate basic concepts with clinical applications. Methods of Evaluation: A written critique will be provided by the student's preceptor and comments will be sought from other members of the division. Weight: 4. *Burch and endocrinology staff*

**MED-293 (C). Diabetes Mellitus Subinternship (Asheville Veterans Administration Medical Center).** Course Goals: (1) Primary—to provide the student with an in-depth experience in the management of patients with diabetes mellitus and its complications. (2) Secondary—to teach the student the physiology of insulin and counter-regulatory hormones and intermediate carbohydrate metabolism. To provide the student with an understanding of the pathophysiology of diabetes mellitus and its complications. How Goals Will Be Achieved: The student will work up and write the orders on the patients with diabetes admitted to the endocrine section at AVAMC. The student will also participate in the diabetes clinic held four times weekly at the outpatient department at the AVAMC. Daily rounds and outpatient work will be supervised by the chief of endocrinology at AVAMC. In addition, the student will participate in the care of diabetic retinopathy at the general ophthalmology and retinal clinics, supervised by ophthalmology staff (examination, laser beam therapy, etc.). The student will participate in the diabetic training program. The student will participate in the endocrine conference and journal club and foot clinic. Method of Evaluation: Chief of Endocrinology will evaluate the student with standard Duke Department of Medicine student evaluation forms. Weight: 4. *Gomez-Uria, Katz and Cherpak*

**MED-300 (C). Nephrology.** Course Goals: (1) Primary—to provide clinical experience in the diagnosis, assessment, and treatment of renal diseases and hypertension. (2) Secondary—to integrate renal physiology, immunology, pathology, and biochemistry into the clinical assessment of renal diseases. How Goals will be Achieved: Students participate fully in both inpatient and outpatient assessment of patients presenting with fluid and electrolytes disorders, problem hypertension, acute renal failure, end-stage renal disease and related complications. The student rounds daily with a renal fellow or senior resident, attends regular weekly faculty teaching rounds and scheduled conferences devoted to correlations with basic science, review of renal biopsy material, transplantation, etc. Special emphasis is placed on renal physiology and pathophysiology, renal histopathology, and hypertension. Students may elect to participate at the VA Medical Center or on the private or nonprivate services at Duke. Methods of Evaluation: Written comments from the faculty. Weight: 4. *Dennis and the nephrology staff*

**MED-301 (C). Fluids and Electrolytes.** Course Goals: (1) Primary—to provide an applied approach to the management of fluid and electrolyte problems encountered in clinical medicine. To do this, cases are presented as problem-solving examples. The goal is to develop a systematic approach to the analysis of specific electrolyte derangements and to the correct selection of appropriate intravenous replacement therapy. These case studies are interwoven with a series of lectures designed to review specific areas such as compartmentalization of body fluids, derangements in acid-base balance, diuretic selection and use, analysis and approach to the treatment of potassium problems, etc. (2) Secondary—to integrate basic renal physiology with clinical problems of fluid and electrolytes metabolism. How Goals Will Be Achieved: Classroom experience. Does not involve patient exposure. Methods of Evaluation: Final exam. Weight: 2. *Dennis*

**MED-307 (C). Neurology Clerkship.** This course is restricted to those students who did not take the neurology rotation in their second year. It provides the student with a firm understanding of the neurological examination, formulation of clinical neurological problems, and practice with written and oral communications in a hospital setting. The student has the opportunity to apply the neuroanatomy, neurophysiology,

neurochemistry, and neuropathology learned in the first year to the evaluation and care of his or her patients. Each student is assigned two patients in the first week and three patients in the last three weeks. The patients are drawn from the neurology services at Duke Hospital or the Durham VAMC. The students elicit a history and perform a physical examination under the supervision of neurology faculty. The student records the findings in the hospital charts and presents the findings at regular staff rounds. The student then participates with a clinical team of faculty and house officers in the hospital evaluation of the patients. The student is encouraged to participate in all diagnostic procedures such as lumbar puncture. The student has the opportunity to follow patients through neuroradiological and neurosurgical procedures forming part of evaluation and treatment. The specific expectations for the sophomore student are: (1) to perform and record a competent neurological and history examination on each admitted patient, (2) to be competent in the hospital management of neurological patients including diagnostic evaluations such as hematological and urine evaluations, lumbar puncture and appropriate electrical studies, (3) to assume responsibility as the primary care person for his or her patients, to include daily progress notes on hospital charts, and to be familiar with the results of all therapeutic interventions and diagnostic tests performed on his patients, (4) to participate in daily work rounds with an assigned team of house officers and faculty, (5) to be sufficiently knowledgeable to participate in patient care decisions, (6) to attend faculty attending rounds and to present his patients to faculty within twenty-four hours after admission, and (7) to participate in neurology service rounds and conferences during the course. The course includes faculty lectures. A written evaluation is provided to the students by faculty and house staff. There is no examination. Weight: 4. *Davis*

**MED-310 (C). Neurology Subinternship.** Course Goals: To provide a neurological patient care experience at the intern level. Students will have the opportunity to apply neurological examination skills learned in the second year to direct patient care situations. Students will be exposed to a variety of neurological problems, procedures and therapies. This course is recommended for the student interested in neurology, psychiatry, internal medicine, neurosurgery, neuropathology or ophthalmology or those students wishing to supplement experience in MED 207 (Neurology Clerkship) or MED 211 (Internal Medicine Subinternship). Students may combine MED 211 with this course to provide advanced clinical training in internal medicine with an emphasis on neurology. How Goals will be Achieved: Students are assigned to the Durham Veterans Administration Medical Center neurology ward and take call in rotation with a medical intern as part of a patient care team. Students attend neurology-neurosurgery grand rounds, medicine grand rounds, neuropathology conferences and participate in all VAMC ward activities. Full time participation is expected. Methods of Evaluation: Resident and staff physician provide a written evaluation and grade. Weight: 4. *Davis and neurology staff*

**MED-320 (C). Rheumatic and Immunological Diseases.** Course Goals: (1) Primary—to provide the student with experience in the recognition and care of patients with rheumatic, inflammatory and immunological disease with particular attention to the various forms of arthritis, connective tissue disease, vasculitis and metabolic arthropathies. (2) Secondary—to have the student achieve exposure to interpretation of the specialized laboratory and clinical techniques relating to the evaluation of patients with rheumatic, immunologic, and metabolic disorders affecting connective tissue. Joint aspiration and injection, synovial fluid analysis, bone and joint radiology, and histopathological analysis of tissue biopsy and interpretation of related serological testing will be studied. How Goals Will Be Achieved: Students will evaluate patients at the Duke and Durham VA Medical Center. Daily rounds are held with the faculty and house officers with emphasis on presentation of patients with detailed review of associated laboratory, x-ray and pathological findings. Basic science conference, bone and joint radiology conferences, pathology conferences and rheumatology/immunology grand rounds are held at weekly intervals. A comprehensive approach to the evaluation and treatment of patients with rheumatic,

inflammatory, immune and metabolic disorders is emphasized. Students are assigned primary house officer responsibilities on the consultation service at the Duke or Durham VA Medical Centers or on the Duke Inpatient Service. In addition to consult and inpatient responsibilities, students are assigned to ambulatory care clinics at both hospitals and participate in all the scheduled functions of the division. Methods of Evaluation: Students' evaluations are based on patient presentations, participation and discussions on rounds and conferences, and their functions in the outpatient clinics. Prerequisite: No other courses are to be taken in conjunction with Medicine 320. Weight: 4. *Haynes and rheumatology/immunology staff*

**MED-321 (C). Rheumatology.** Course Goals: An introductory course in clinical rheumatology designed to introduce students to the basics of differential diagnosis in the field of rheumatic disease; to provide more detailed knowledge of the most common, major groups of rheumatic disorders. How Goals Will Be Achieved: The use of patients and patient presentations coordinated with didactic lectures will be the primary mode of teaching. Faculty members will introduce patients with typical problems relating to the disease to be discussed. Subsequent material on basic pathophysiology, clinical features, laboratory and x-ray findings and pathology materials will be presented and discussed in relation to the patient at the time of presentation. Whenever possible students will be encouraged to interact directly with the patient at hand. Methods of Evaluation: Written examination. Weight: 1. *Rice and rheumatology faculty members*

**MED-400 (C). Geriatric Medicine.** Course Goals: (1) Primary—become familiar with the principles of caring for the geriatric patient. (2) Secondary—become familiar with the physiology and diseases of aging. How Goals Will Be Achieved: This elective is offered by the interdepartmental faculty of the Division of Geriatric Medicine. The student will work with faculty, fellows, and house staff in a number of settings involved in the care of the geriatric patient. These will include the Geriatrics Evaluation and Treatment Clinic (Duke), Geriatric Evaluation Unit and Clinic (VAMC), geriatric consultation services (VAMC, DCG, Duke), nursing home facilities, interactions with community services (Coordinating Council for Senior Citizens), home assessment, and other. Principles to be stressed will be biology and pathophysiology of aging, multiple clinical problems in the elderly, interdisciplinary team approach to evaluation, planning and treatment; goals of maximal functional achievement and independence for the elderly. The student will participate actively in the work-up and management of patients in both inpatient and outpatient settings as well as become more familiar with the problems of the elderly in the community. Familiarity with the growing literature in geriatric medicine will be encouraged and the student will participate in seminars, lectures, and team meetings at the appropriate sites including the Duke Center for the Study of Aging. Methods of Evaluation: Evaluation will be by consensus of instructors and fellows at the various training sites. It will be based on discussions and presentations throughout the course period. Prerequisite: Approval of course director. Weight: 4. *Cohen and staff*

## Microbiology and Immunology

James B. Duke Professor: Wolfgang K. Joklik, D. Phil. (Oxford, 1952), *Chairman*.

James B. Duke Professor: D. Bernard Amos, M.D. (Guy's Hospital, London 1963).

Professors: Robert C. Bast, Jr., M.D. (Harvard, 1971); Deepak Bastia, Ph.D. (Chicago, 1971); Dani P. Bolognesi, Ph.D. (Duke, 1967); Rebecca H. Buckley, M.D. (North Carolina at Chapel Hill, 1958); Peter Cresswell, Ph.D. (London, 1971); David T. Durack, D.Phil. (Oxford, 1973); David R. McClay, Jr., Ph.D. (North Carolina at Chapel Hill, 1971); Richard S. Metzgar, Ph.D. (Buffalo, 1959); Joseph R. Nevins, Ph.D. (Duke, 1976); Suydam Osterhout, M.D. (Duke, 1949), Ph.D. (Rockefeller Inst., 1959); Wendell F. Rosse, M.D. (Chicago, 1958); Hillard F. Seigler, M.D. (North Carolina at Chapel Hill, 1960); Frances E. Ward, Ph.D. (Brown, 1965); Robert W. Wheat, Ph.D. (Washington Univ., 1955); Catherine M. Wilfert, M.D. (Harvard, 1962); Hilda P. Willett, Ph.D. (Duke, 1949).

Visiting Professor: Nicholas C. Palczuk, Ph.D. (Pennsylvania, 1958).

Adjunct Professors: James J. Burchall, Ph.D. (Illinois, 1963); David W. Scott, Ph.D. (Yale, 1969); Norman F. Weatherly, Ph.D. (Kansas, 1962).

Emeritus: Eugene D. Day, Ph.D. (Delaware, 1952).

Associate Professors: Dolph O. Adams, M.D. (Med. Coll. of Georgia, 1965); Ralph Randall Bollinger, M.D. (Tulane, 1970); Ronald B. Corley, Ph.D. (Duke, 1975); Jeffrey Dawson, Ph.D. (Case Western Reserve, 1969); Sharyn A. Endow, Ph.D. (Yale, 1975); Warner C. Greene, M.D., Ph.D. (Washington Univ., 1977); John D. Hamilton, M.D. (Colorado, 1964); Barton F. Haynes, M.D. (Baylor, 1973); Gale B. Hill, Ph.D. (Duke, 1966); Jack D. Keene, Ph.D. (Washington, 1974); Dolph Klein, Ph.D. (Rutgers, 1961); Elwood A. Linney, Ph.D. (California at San Diego, 1973); Thomas G. Mitchell, Ph.D. (Tulane, 1971); Joan V. Ruderman, Ph.D. (Massachusetts Inst. of Tech., 1974); Harvey J. Sage, Ph.D. (Yale, 1958); Judith L. Swain, M.D. (California at San Diego, 1974); Peter Zwadyk, Jr., Ph.D. (Iowa, 1971).

Associate Medical Research Professors: Andrew E. Balber, Ph.D. (Rockefeller, 1971); Sara E. Miller, Ph.D. (Georgia, 1972).

Adjunct Associate Professors: Jeffrey J. Collins, Ph.D. (Harvard, 1972); Lorraine Flaherty, Ph.D. (Cornell, 1973); Hillel S. Koren, Ph.D. (Harvard, 1972).

Assistant Professors: Yair Argon, Ph.D. (Harvard, 1979); Charles E. Buckley III, M.D. (Duke, 1954); Olivera J. Finn, Ph.D. (Stanford, 1980); Harry A. Gallis, M.D. (Duke, 1967); Donald L. Granger, M.D. (Utah, 1972); Kenneth N. Kreuzer, Ph.D. (Chicago, 1978); Mary Louise Markert, M.D. (Duke, 1982), Ph.D. (Duke, 1981); James E. Niedel, M.D. (Miami, 1973), Ph.D. (Miami, 1974); Michael C. Ostrowski, Ph.D. (South Carolina, 1979); David J. Pickup, Ph.D. (National Institute of Medical Research, London, 1979); David S. Pisetsky, Ph.D. (Albert Einstein, 1972), M.D. (Albert Einstein, 1973).

Visiting Assistant Professor: Prof. Gang Deng, M.D. (Beijing Medical College, Beijing, China, 1960).

Assistant Medical Research Professors: Vickers Burdett, Ph.D. (Georgetown, 1973); Bryan R. Cullen, Ph.D. (New Jersey, 1984); Michael A. Hollingsworth, Ph.D. (Wake Forest, 1982); Donna D. Kostyu, Ph.D. (Duke, 1979); Mary F. Lampe, Ph.D. (North Carolina at Chapel Hill, 1984) Kay H. Singer, Ph.D. (Duke, 1977).

Adjunct Assistant Professors: Lynn P. Elwell, Ph.D. (Oregon, 1974); Susan F. Radka, Ph.D. (Pittsburgh, 1977).

Medical Research Associates: Mary Carrington, Ph.D. (Iowa, 1982); Enrique G. Estevez, Ph.D. (Miami, 1976); Lizzie J. Harrell, Ph.D. (North Carolina State, 1978).

Lecturer: Alfred P. Sanfilippo, Ph.D. (Duke, 1975), M.D. (Duke, 1976).

Research Associates: Z. Abdel-Wahab, Ph.D.; J. Alexander, Ph.D.; S. Bagchi, Ph.D.; W. Balkan, Ph.D.; A. Banerjee, Ph.D.; S. Batra, Ph.D.; R. Bentley, M.D.; K. Brechling, Ph.D.; S. Chellappan, Ph.D.; E. Click, Ph.D.; A. Colosia, Ph.D.; J. Conger, Ph.D.; J. Davis, Ph.D.; S. Deutscher, Ph.D.; J. Dul, Ph.D.; M. Emara, Ph.D.; D. Frielle, Ph.D.; G. Gilmartin, Ph.D.; D. Harper, Ph.D.; M. Hart, Ph.D.; A. Haviland, Ph.D.; S. Hiebert, Ph.D.; A. Haviland, M.D.; A. Huff, Ph.D.; C. Ingram, M.D.; H. Jiang, Ph.D.; A. Kelekar, Ph.D.; D. Komma, Ph.D.; B. Kroger, Ph.D.; M. Lan, Ph.D.; C. Lapham, Ph.D.; P. Le, Ph.D.; M. Moody, Ph.D.; M. Mudryj, Ph.D.; S. Mukerjee, Ph.D.; T. Mullins, Ph.D.; J. Nicolas, Ph.D.; L. Niedziela, Ph.D.; P. Raychaudhuri, Ph.D.; J. Romac, Ph.D.; M. Roner, Ph.D.; R. Rooney, Ph.D.; P. Schnitzler, Ph.D.; N. Sethuraman, Ph.D.; P. Sista, Ph.D.; W. Storkus, Ph.D.; J. Ways, Ph.D.; A. Worlock, Ph.D.; E. Weiss, Ph.D.; C. White, Ph.D.; R. Wiegel, Ph.D.

## Required Courses

**MIC-200.** The core course in microbiology for medical students is given during the second semester of the first year. An intensive study is made of the common bacteria, viruses, fungi, and parasites that cause disease in man. The didactic portion of the course focuses on the nature and biological properties of micro-organisms causing disease, the manner of their multiplication, and their interaction with the entire host as well as specific organs and cells. The role of the immune system and of specific antimicrobial therapy on the host-parasite relationship are included.

The laboratory portion of the course is designed to acquaint students with the methods and procedures employed in clinical microbiology laboratories, to provide the basis for an understanding of cell-virus interactions, and to demonstrate the nature of the more common pathogenic fungi and parasites. Clinical case histories are presented by the clinical staff to correlate this course with patient care.

**MIC-201.** A short core course in immunology for first-year medical students. The course includes a general introduction to special areas of immunology such as immunochemistry, immunohematology, and immunogenetics including transplantation and tumor immunology. The initial lectures describe the properties of antibodies, the characteristics of antigens, classes of reactive lymphocytes and accessory cells, the biology of substances released from lymphocytes (lymphokines) and the complement system. The course is enriched with clinical presentations and by discussion groups.

## Electives

**MIC-246(B). Seminar on Parasitic Diseases.** Topics in the physiology and immunology of major human and animal parasites with an emphasis on protozoa and schisto-

somes. Extensive reading in and discussion of current literature. Basic parasitology developed in introductory readings and lectures. Weight: 3. *Balber*

**MIC-252(B). General Virology and Viral Oncology.** The first half of the course will be devoted to a discussion of the structure and replication of mammalian and bacterial viruses. The second half deals specifically with tumor viruses, which are discussed in terms of the virus-cell interaction, the relationship of virus infection to neoplasia, and the application of retroviruses in molecular and developmental biology. Permission of the instructors is required. Weight: 4. *Keene, Joklik, Bastia, Kreuzer, Ostrowski, Linney, Nevins, and Pickup*

**MIC-259(B). Molecular Biology I. Protein and Membrane Function.** Detailed concepts of the structure and function of proteins as enzymes and as structural elements of cellular substructures, including: protein primary structure and its determination, patterns of protein folding, mechanisms of enzyme catalysis and regulation, function and formation of multimeric protein assemblies, proteins and other constituents of biological membranes. Weight: 3. *Richardson and staff*

**MIC-268(B). Molecular Biology II. Nucleic Acids.** Consideration of structure and metabolism of nucleic acids in the context of their biological function in information transfer. Emphasis will be on the current research literature. Weight: 3. *Modrich, Bastia, and Steege*

**MIC-269(B). Advanced Cell Biology.** An advanced course in cell biology with emphasis on current research literature, and featuring in-depth discussion of selected areas by staff engaged in research in these areas. The course covers membrane structure and physiology, the cytoskeleton, cell motility systems, chromosome mechanics, chromosome structure and function, and eukaryotic gene structure, control, and replication. Weight: 3. *Endow and staff*

**MIC-291(B). Comprehensive Immunology.** An intensive course in the biology of the immune system and the structure and function of its component parts. Major topics discussed are: properties of antigens; specificity of antibody molecules and their biologic functions; cells and organs of the lymphoid system; structure and function of complement; inflammation and nonspecific effector mechanisms; cellular interactions and soluble mediators in lymphocyte activation, replication, and differentiation; regulation of immune responses; neoplasia and the immune system; molecular structure and genetic organization of (a) immunoglobulins, (b) histocompatibility antigens, and (c) T cell receptor. Weight: 4. *Finn, Argon and staff*

**MIC-301(B). Principles of Infectious Disease.** A seminar course to familiarize students with the basic biologic concepts, the pathogenesis, and the clinical manifestations of infectious diseases caused by bacteria, viruses, fungi, rickettsia. The host defenses to infectious agents including the acute inflammatory response and humoral, cellular immunity, and current and future trends in the development of vaccines and antimicrobial and antiviral agents will also be discussed. Weight: 3. *Wilfert, Gutman, McKinney, and staff.*

**MIC-304(B). Molecular Membrane Biology.** Advanced seminar course on various cellular membranes; emphasis on cell biology of the immune system. Discussion topics include: biosynthesis of membrane proteins; intracellular transport vesicles; endocytosis; signal transduction across the plasma membrane; intracellular organelles and protein sorting; cell interactions in differentiation. Prerequisite: Permission of instructor. Weight: 2. *Argon and Cresswell*

**MIC-306(B). Clinical Microbiology.** A bench-training course in methods used in clinical microbiology stressing isolation, characterization, and antibiotic susceptibility testing of clinically significant microorganisms. Course conducted in Duke microbiology division laboratories (bacteriology, anaerobic bacteriology, mycobacteriology, mycology, parasitology and serology). Prerequisite: Permission of instructor. Weight: 8. *Klein*



**MIC-308(B). Clinical Microbiology-Immunology.** A bench-training course in methods used in clinical microbiology stressing isolation and characterization of clinically significant microorganisms. Course conducted in the V. A. Medical Center microbiology laboratory. Prerequisite: Permission of instructor. Weight: 8. *Zwadyk*

**MIC-310(B). Molecular Development.** Selected topics of current research using molecular and genetic approaches to study development and developmental gene regulation in eukaryotes. Lectures and student presentations of research with various developmental systems (e.g., *C. elegans*, *Drosophila*, mouse teratocarcinoma cells, mouse embryos) will be included. Weight: 2. *Linney and staff*

**MIC-325(B). Medical Mycology.** Comprehensive lecture and laboratory coverage of all the fungi pathogenic for humans. The epidemiology, clinical manifestations, diagnosis, host responses and treatment of each mycotic disease will be explored, along with the biology, ecology, immunology, and mechanisms of pathogenicity of the fungal agents. Both practical aspects and future trends in clinical mycology, as well as the dynamics of host-fungal interactions will be covered. There will be several invited lecturers, each an internationally recognized scientist, discussing their particular areas of mycological expertise and current research. Weight: 4. *Mitchell*

**MIC-330(B). Medical Immunology.** This is a comprehensive course in clinical immunology which attempts to define the role that immunology plays in the etiology, diagnosis, nosology, and therapy of human disease. The course includes some lectures on basic and applied immunology with many lectures given by faculty members from clinical departments. Weight: 5. *Ward and staff*

**MIC-336(B). Contemporary Topics in Immunogenetics.** Selected themes in immunogenetics with special emphasis on molecular approaches. The major areas discussed are: the nature, interaction and expression of immunoglobulin genes and T-cell receptor genes, the genes of the major histocompatibility complex, and the genes of the T/t complex. The central ideas discussed include the manner in which cells recognize and interact with each other in phylogeny, ontogeny, and in differentiation; how gene families evolve and interact, and how information about these complex genetic systems is used in basic research and in clinical medicine. Prerequisite: MIC-291(B). Weight: 2. *Amos and Ward*

**MIC-339(B). Diagnostic Microbiology and Infectious Disease.** Introduction to the methods for the laboratory diagnosis of infectious disease and their clinical application. Basic biologic and clinical aspects will be correlated in a seminar-lecture format. Weight: 2. *Suydam Osterhout*

**MIC-399(B). Preceptorship in Microbiology and Immunology.** An individual reading and/or laboratory course in specialty areas supervised by an individual faculty member. Acceptance, nature of topic, and amount of credit by individual arrangement with proposed faculty member. Prerequisite: To be determined by instructor. Weight: 1-18. *Microbiology and immunology staff*

## Neurobiology

Professor: William C. Hall, Ph.D. (Duke, 1967), *Interim Chairman*.

Professors: Irving T. Diamond, Ph.D. (Chicago, 1958); John W. Everett, Ph.D. (Yale, 1932); John W. Moore, Ph.D. (Virginia, 1961); J. David Robertson, M.D., Ph.D. (Harvard, 1966); Sidney A. Simon, Ph.D. (Northwestern, 1974); George G. Somjen, M.D. (New Zealand, 1963); John Staddon, Ph.D. (Harvard, 1967).

Associate Professors: Peter B. Bennett, Ph.D. (Univ. of Southampton, 1972); Nell B. Cant, Ph.D. (Michigan, 1978); Joseph M. Corless, M.D., Ph.D. (Duke, 1972); Robert P. Erickson, Ph.D. (Brown, 1961); J. Victor Nadler, Ph.D. (Yale, 1978); E. Lee Tyrey, Ph.D. (Illinois, 1970); Myron L. Wolbarsht, Ph.D. (Johns Hopkins, 1968).

Assistant Professors: Robert R. H. Anholt, Ph.D. (California at San Diego, 1986); Barbara J. Crain, M.D., Ph.D. (Duke, 1986); David Fitzpatrick, Ph.D. (Duke, 1986); Darrell V. Lewis, Jr., M.D. (Minnesota, 1978).

Medical Research Associate Professors: Peter G. Aitken, Ph.D. (Connecticut, 1982); John H. Casseday, Ph.D. (Indiana, 1972).

Assistant Medical Research Professors: Gillian Einstein, Ph.D.; Michael L. Hines, Ph.D. (Chicago, 1978); Pedro Labarca, Ph.D. (Brandeis, 1986); Denis Raczowski, Ph.D. (Duke, 1986).

Associates in Research: Clark Lindgren, Ph.D.; Anna Menini, Ph.D.; Brett Schofield, Ph.D.

## Required Course

**NBI-202. Basic Neurobiology.** An integrated interdepartmental course designed for first year medical students and other professional and graduate students who need a core course on the morphology and functions of the mammalian nervous system. Lectures, laboratory demonstrations, clinical conferences and lecture conferences during the month of January only. Prerequisites: BAA-200, CBI-201, BCH-200 and CBI-200 or equivalents. C-L: BAA-202, BCH-202. Weight: 4. *Hall, Moore and staff*

## Electives

**NBI-266(B). Comparative Neurobiology.** The evolution and functional organization of the vertebrate brain. A study of the original papers by the great pioneers in evolution, neuropsychology and neuroanatomy. Weight: 3. *Hall and Diamond*

**NBI-270(B). Neurobiology.** Interdisciplinary approach to neuronal function at the cellular and molecular levels. Topics will include: subcellular structural organization, physiology and pharmacology of excitable membranes, impulse generation and conduction, neurotransmitters, proteins, pre- and postsynaptic organization and function. Weight: 3. *Moore, Kirshner, Costello, Corless, and Schweitzer*

## Obstetrics and Gynecology

Professor: Charles B. Hammond, M.D., E. C. Hamblen Chair of Reproductive Biology and Family Planning, (Duke, 1961), *Chairman*.

Professors: Arthur C. Christakos, M.D. (Med. Coll. of South Carolina, 1955); Daniel Clarke-Pearson, M.D. (Case Western Reserve, 1975); Arthur F. Haney, M.D. (Arizona, 1972); Allen P. Killam, M.D. (Texas, 1960); Roy T. Parker, M.D., F. Bayard Carter Chair of Obstetrics and Gynecology, (Med. Coll. of Virginia, 1944); Warren E. Patow, M.D. (Marquette, 1947); Charles H. Peete, Jr., M.D. (Harvard, 1947); David W. Schomberg, Ph.D. (Purdue, 1965); E. Lee Tyrey, Ph.D. (Illinois, 1969).

Adjunct Professor: William T. Creasman, M.D. (Baylor, 1966).

Associate Professors: W. Allen Addison, M.D. (Duke, 1960); Nels C. Anderson, Ph.D. (Purdue, 1964); Gale B. Hill, Ph.D. (Duke, 1966); Lloyd F. Redick, M.D. (Ohio, 1958); Patricia M. Saling, Ph.D. (Pennsylvania, 1979).

Associate Clinical Professors: Donald T. Moore, M.D. (Meharry, 1958); John F. Steege, M.D. (Yale, 1972).

Assistant Professors: Andrew Berchuck, M.D. (Case Western Reserve, 1980); James D. Bowie, M.D. (Oklahoma, 1967); William C. Dodson, M.D. (Temple, 1980); Marvin Hage, M.D. (Michigan, 1967); Claude L. Hughes, M.D., Ph.D. (Duke, 1980); Roderick F. Hume, M.D. (Florida, 1980); Verda J. Hunter, M.D. (Illinois, 1982); Helen Kay, M.D. (Yale, 1979); Charles H. Livengood III, M.D. (Duke, 1976); Joanne T. Piscitelli, M.D. (Duke, 1980); Andrew P. Soisson, M.D. (Georgetown, 1981); John T. Soper, M.D. (Iowa, 1978); Anna L. Stout, Ph.D. (South Carolina, 1980); Martha C. Timmons, M.D. (North Carolina at Chapel Hill, 1975); Camille J. Wahbeh, M.D. (Lebanon, 1980); L. Lewis Wall, M.D., Ph.D. (Kansas, 1983); David K. Walmer, M.D., Ph.D. (North Carolina at Chapel Hill, 1983); J. Brice Weinberg, M.D. (Arkansas, 1969).

Assistant Clinical Professors: Karen C. Diaz, M.D. (Texas, 1983); Arnold S. Grandis, M.D., Ph.D. (Duke, 1974); Joseph T. Lanman, Ph.D. (Indiana, 1977).

Assistant Consulting Professors: James L. Allen, M.D. (Emory, 1965); Paul S. Andrews, M.D. (North Carolina at Chapel Hill, 1981); John V. Arey, M.D. (Harvard, 1946); Arnold R. Barefoot, M.D. (North Carolina at Chapel Hill, 1982); Rudy W. Barker, M.D. (North Carolina at Chapel Hill, 1967); Mary K. Beckwith, M.D. (Iowa, 1982); Karen H. Brown, M.D. (Alabama, 1982); Walker H. Campbell, M.D. (Med. Coll. of Virginia, 1963); David B. Crossland, M.D. (North Carolina at Chapel Hill, 1958); Yancey G. Culton, Jr., M.D. (Duke, 1956); Jerry L. Danford, M.D. (Duke, 1967); Crowell T. Daniel, Jr., M.D. (Med. Coll. of Virginia, 1948); James R. Dingfelder, M.D. (Jefferson, 1965); Michael D. Fried, M.D. (New York, 1971); Carl A. Furr, Jr., M.D. (North Carolina at Chapel Hill, 1958); E. C. Garber, Jr., M.D. (Med. Coll. of Virginia, 1944); Michael D. Gooden, M.D. (North Carolina at Chapel Hill, 1973); William B. Gunter, Jr., M.D. (Emory, 1982); William D. Haithcock, M.D. (Med. Univ. of South Carolina, 1973); Joe W. Hardison, M.D. (North Carolina at Chapel Hill, 1965); Perry M. Harmon, M.D. (North Carolina at Chapel Hill, 1974); Bennet A. Hayes, M.D. (North Carolina at Chapel Hill, 1957); James F. Holman, M.D. (Arkansas, 1970); Wanda L. Jenkins, M.D. (Cincinnati, 1979); Clayton J. Jones, M.D. (Tennessee, 1952); Johnnie E. Jones, M.D. (Meharry, 1976); Glenward T. Keeney, M.D. (Med. Coll. of Virginia, 1967); John W. Lane, M.D. (Duke, 1972); Richard L. Lassiter, M.D. (North Carolina at Chapel Hill, 1965); Stephen C. Lies, M.D. (Duke, 1976); Frank

E. Long, M.D. (Maryland, 1975); Jack P. McDaniel, M.D. (North Carolina at Chapel Hill, 1956); Dudley C. Miller, M.D. (Missouri, 1959); James P. Moon, M.D. (South Dakota, 1979); William A. Nebel, M.D., (North Carolina at Chapel Hill, 1962); Talbot F. Parker, Jr., M.D. (Jefferson, 1951); Phillip H. Pearce, M.D. (Duke, 1960); Steven M. Scott, M.D. (Indiana, 1974); W. Siegfried Smith, Jr., M.D. (Duke, 1961); Paul A. Vieta, M.D. (New Jersey, 1966); Bertram E. Walls, M.D. (Duke, 1972); Rex G. Waterbury, M.D. (Bowman Gray, 1983); Robert K. Yowell, M.D. (Duke, 1961).

Assistant Medical Research Professor: Christopher P. Carron, Ph.D. (Iowa, 1982).

Associates: Kevin E. Bachus, M.D. (Colorado, 1984); Elizabeth G. Livingston, M.D. (Duke, 1984); George J. Olt, M.D. (Cincinnati, 1984); Sharon L. Rupp, B.S., A.A.S.; Minna R. Selub, M.D. (Mount Sinai, 1984).

Clinical Associates: Karen Albiez, M.S.; Elizabeth J. Burkett, B.S.N., M.S.N.; Ruth Cole, M.N., C.N.M.; Avick G. Mitra, M.D. (Emory, 1984).

Consulting Associates: Vivian E. Clark, M.D. (Boston Univ., 1981); Ronald E. Granger, M.D. (California at Irvine, 1977); Charles O. Harris, M.D. (Duke, 1979); William R. Lambeth, M.D. (Bowman Gray, 1974); Linda T. McAlister, M.D. (California at San Francisco, 1978); Marla M. Presta, M.D. (Chicago, 1982); E. Frank Shavender, M.D. (North Carolina at Chapel Hill, 1968); Ira Q. Smith, M.D. (Bowman Gray, 1979); Joseph A. Stephens, M.D. (Pittsburgh, 1952); Thomas A. Stokes, Jr., M.D. (Duke, 1955); Allen H. Van Dyke, M.D. (Bowman Gray, 1971).

## Required Course

In Introduction to Clinical Medicine the first-year student receives instruction in the fundamentals of obstetric and gynecologic history and pelvic examinations.

**OBG-205 (C).** Required of all second-year students—consists of eight weeks in general obstetrics and gynecology. Students attend lectures, work daily in the general and special outpatient clinics, and are assigned patients on the obstetric and gynecologic wards. Students share in patient care, teaching exercises, and in daily tutorial sessions with the faculty. Clinical conferences, a gynecologic-pathology conference, endocrine conferences, and correlative seminars and lectures are included.

## Electives

**OBG-210 (C). Gynecologic Cancer.** This course presents a clinical experience in the management of patients with a gynecologic malignancy. The student will assume the role of an extern. Outpatient, inpatient, and operative exposure to these patients will be extensive. Weight: 4 or 8. *Clarke-Pearson, Soper, Berchuck, Parker, Hunter, and Christensen*

**OBG-213 (C). Preparation for Practice, Cape Fear Valley Hospital, Fayetteville Area Health Education Center.** This is a unique opportunity to receive both didactic exposure and clinical experience in obstetrics and gynecology in Cape Fear Valley Hospital, a large community hospital in Fayetteville, North Carolina, where almost 4,000 patients are delivered each year. The student will actively participate in the care of patients in the labor and delivery rooms, assist at surgery, and render postoperative care. This is a community hospital experience rather heavily weighted in clinical obstetrics. Students will be exposed to a large volume of clinic opportunities. Two senior residents from Duke rotate through Cape Fear Valley Hospital. The student will be directly supervised by Dr. Warren Patow (full-time Duke faculty at Cape Fear) and Dr. Ed Garber, in addition to Duke obstetrics and gynecology residents. Prerequisite: Permission of Dr. Hammond prior to signing for the course. Weight: 4. *Hammond, Patow, Garber, and staff of Cape Fear Valley Hospital*

**OBG-231 (C). Clinical Reproductive Endocrinology.** Course for students who desire additional basic and clinical experience in examination, diagnosis, and treatment of obstetric and gynecologic patients with endocrinopathy and infertility. Course consists of instruction in clinical reproductive problems correlated with examination and treatment of patients both in the Endocrinology Outpatient Clinic and in the hospital. Permission of instructor required. Weight: 4. *Haney, Hammond, Dodson, Hughes, Schomberg, Tyrey, Saling, and fellows on Endocrine Division*

**OBG-239 (C). Perinatal Medicine.** A study of the relationship of clinical factors during pregnancy, labor, delivery, and the first month of life. Emphasis will be placed on abnormal conditions of pregnancy as related to the infant, prenatal pathological conditions

adversely afflicting the fetus and newborn, and early management of the infant. Current problems in maternal-fetal relationships will be outlined. The clinical rotation will consist of half time on the high-risk obstetric service and half time on the nursery service. (Duke North ICN, or Duke South nurseries.) See also PED 239 and PED 225. Weight: 8. Must contact Dr. Killam prior to registration. *Killam*

**OBG-243 (C). Human Sexuality.** This is an opportunity for all medical students to become more comfortable with talking about sexual issues. Students will act as discussion group leaders for a Duke undergraduate course in human sexuality. Discussion facilitation, rather than didactic teaching is emphasized. Weight: 1. *Steege*

**OBG-245 (C). Office Gynecology.** For students preparing for general practice, medicine, pediatrics, and surgery. Outpatient clinic and emergency room diagnosis and patient care are taught. Weight: 4 or 8. *Parker, Christakos, and staff*

**OBG-247 (C). Clinical Obstetrics.** For students preparing for general practice of medicine, pediatrics or obstetrics and gynecology. This course will study the relationship of clinical factors during pregnancy, labor and delivery. Emphasis will be placed on abnormal conditions of pregnancy as related to the infant. Current problems in the maternal-fetal relationship will be outlined. The student will function on an intern level and take part in activities of the housestaff and faculty. Weight: 4 or 8. *Killam, Grandis, Hage, Kay, and fellows on obstetrical service*

**OBG-249 (C). Clinical Gynecology.** For students preparing for obstetrics and gynecology general practice, surgery, and urology. Emphasis is placed on the outpatient assessment of patients with acute and chronic gynecologic disorders including benign neoplasia, loss of pelvic support, menopausal symptomatology, and others. Students will have the opportunity to work closely with faculty members in the Division of Gynecology. Inpatient care is not required but participation in the operative care of gynecologic patients can be arranged if desired. Ample time for independent study is planned. It is anticipated that the student will utilize this time reviewing a specific clinical problem with frequent guidance and input from a member of the gynecology division with similar interests. Weight: 4 or 8. *Addison, Parker, Peete, Livengood, Steege, Piscitelli, Wall, and Timmons*

**OBG-250 (C). Psychosomatic Gynecology.** For students interested in obstetrics and gynecology, family practice, and internal medicine. This course will emphasize clinical experience in the diagnosis and treatment of chronic pain, as well as the management of other psychosomatic and psychophysiologic problems in gynecologic practice. Clinical research may be undertaken by arrangement. Must contact Dr. Steege prior to registration. Weight: 1-4. *Steege and Stout*

**OBG-253 (C). Preparation for Practice, Cabarrus Memorial Hospital, Concord, North Carolina.** This is an opportunity to receive both didactic exposure and clinical exposure in obstetrics and gynecology in the community hospital. The student will be expected to function as an intern and will participate actively in the care of the patients in the labor and delivery area, assist at surgery, and render postpartum and postoperative care. This is a community hospital experience rather heavily weighted in clinical obstetrics. The student will be exposed to a large volume of clinical material. The practitioners in the community are all board-certified obstetricians and gynecologists and are interested in student teaching. A Duke faculty person will provide additional guidance by visits once per week. This elective can be taken for four weeks for four units or eight weeks for eight units. The student will be housed in quarters available for them. Prerequisites: Permission of Dr. Hammond prior to signing for the course. Weight: 4, 6, or 8. *Hammond and staff of the Cabarrus Memorial Hospital*

# Ophthalmology

Professor: Helena Rubinstein Foundation Professor of Ophthalmology Robert Macheemer, M.D. (Freiburg, Germany, 1959), *Chairman*.

Professors: W. Banks Anderson, Jr. M.D. (Harvard, 1956); Gary N. Foulks, M.D. (Columbia, 1970); Diane Van Horn Hatchell, Ph.D. (Marquette, 1968); Gordon K. Klintworth, M.D. (Univ. of Witwatersrand, 1957), Ph.D. (Univ. of Witwatersrand, 1966); M. Bruce Shields, M.D. (Oklahoma, 1966).

Associate Professors: Edward G. Buckley, M.D. (Duke, 1977); L. Michael Cobo, M.D. (Harvard, 1975); Jonathan G. Dutton, M.D. (Washington, 1977); Brooks W. McCuen II, M.D. (Columbia, 1974); Judy H. Seaber, Ph.D. (Duke, 1985); Fulton Wong, Ph.D. (Rockefeller, 1977).

Assistant Professors: Glenn J. Jaffe, M.D. (California at San Francisco, 1983); Eugene de Juan, M.D. (Alabama, 1979); Stephen C. Pollock, M.D. (Illinois, 1981); Alan D. Proia, Ph.D. (Rockefeller, 1979), M.D. (Cornell, 1980); James S. Tiedeman, M.D. (Duke, 1977).

Assistant Clinical Professor: Calvin H. Mitchell, M.D. (Duke, 1958).

Associate Consulting Professors: Edward K. Isbey, Jr., M.D. (Michigan, 1955); Lawrence W. Moore, Jr., M.D. (Duke, 1963).

Assistant Consulting Professors: David P. Berry, M.D. (South Carolina, 1975); David J. Browning, M.D. (Duke, 1981) Ph.D. (Duke, 1980); John W. Cline, M.D. (North Carolina at Chapel Hill, 1966); Edward M. Hedgepeth, M.D. (North Carolina at Chapel Hill, 1962); Edward K. Isbey, III, M.D. (North Carolina at Chapel Hill, 1981); Thomas C. Kerns, M.D. (Duke, 1950); Walter C. McLean, Jr., M.D. (Virginia 1975); Charles F. Sydnor, M.D. (Virginia, 1969).

Consulting Associates: Thomas L. Beardsley, M.D. (Duke, 1971); Dorothy Bell, M.D. (North Carolina at Chapel Hill, 1980); J. Thomas Foster, M.D. (Duke, 1958); William R. Harris, M.D. (North Carolina at Chapel Hill, 1956); John H. Killian, M.D. (Bowman Gray, 1967); Martin J. Kreshon, M.D. (Marquette, 1954); W. Hampton Lefler, M.D. (Bowman Gray, 1963); Joseph A. Locascio, M.D. (Virginia, 1975); Harold E. Shaw, Jr., M.D. (Med. Univ. of South Carolina, 1973).

Emeritus: Joseph A. C. Wadsworth, M.D.

## Electives

**OPH-210 (C). Medical Ophthalmology.** The ophthalmic signs and symptoms of systemic disease are presented in a lecture series. Oriented for those students interested primarily in pediatrics, internal medicine, or ophthalmology. Weight: 1. *Shields, Tiedeman, and Mitchell*

**OPH-212 (C). General Ophthalmology.** A clinical preceptorship in which the student will participate and observe in the regular house staff activities, conferences, lectures, patient care, and treatment including surgery. Emphasis on the use of specialized ophthalmic apparatus is emphasized. Weight: 4-8. *Shields*

**OPH-213 (C). Ophthalmic Pathology.** The student will review all ophthalmic pathology specimens submitted and any pertinent permanent specimens. He or she will attend all regular ongoing ophthalmic pathology conferences. Weight: 1. *Klintworth and Proia*

**OPH-214 (C). Investigative Ophthalmology.** The student is assigned a project relating to basic ophthalmologic problems. Technical assistance, sufficient equipment and laboratory animals are supplied for the completion of the project. The student is expected to attend all scheduled research seminars. Prerequisites: OPH-212 and OPH-210 suggested but not required. Student must devote at least three months to the elective. Weight: 4-8. *Klintworth*

**OPH-215 (C). Pediatric Ophthalmology.** A clinical preceptorship in which the student will participate in an outpatient pediatric ophthalmology clinic. The student will encounter the more common ocular disorders of childhood, including ocular motility disturbances, congenital disorders, and congenital metabolic disorders. The diagnosis and treatment aspects will be emphasized heavily. The course meets on Tuesdays from 9 A.M. until 4 P.M., or by special arrangement. Additional experiences, which would include surgery and/or pediatric neuro-ophthalmology can be arranged. Weight: 1 or 2. *Buckley and Seaber*

**OPH-216 (C). Clinical Neuro-Ophthalmology.** Neuro-ophthalmology is the ocular manifestation of neurologic disease. The course is designed to equip the student with the techniques necessary to recognize a commonly encountered neuro-ophthalmic disorder. Emphasis will be placed on optic nerve exam, ocular motility disorders, pupillary abnormalities, and visual field defects. Weight: 1. *Pollack and Buckley*

# Pathology

Professor: James B. Duke Professor Robert B. Jennings, M.D. (Northwestern, 1950), *Chairman*.

Professors: Dolph O. Adams, M.D. (Med. Coll. of Georgia, 1965); Ph.D. (North Carolina at Chapel Hill, 1969); Darell D. Bigner, M.D. (Duke, 1965), Ph.D. (Duke, 1971); Sandra H. Bigner, M.D. (Tennessee, 1971); Edward H. Bossen, M.D. (Duke, 1965); William D. Bradford, M.D. (Western Reserve, 1958); Peter C. Burger, M.D. (Northwestern, 1966); Bernard F. Fetter, M.D. (Duke, 1944); Doyle G. Graham, M.D. (Duke, 1966), Ph.D. (Duke, 1971); Donald B. Hackel, M.D. (Harvard, 1946); Raymond E. Ideker, M.D. (Tennessee, 1974), Ph.D. (1972); William W. Johnston, M.D. (Duke, 1959); Gordon K. Klintworth, M.D. (Univ. of Witwatersrand, 1957), Ph.D. (Univ. of Witwatersrand, South Africa, 1966); John A. Koepke, M.D. (Wisconsin, 1956); George Michalopoulos, M.D. (Athens, 1970), Ph.D. (Wisconsin, 1977); Salvatore Pizzo, M.D. (Duke, 1972), Ph.D. (Duke, 1973); Keith A. Reimer, M.D. (Northwestern, 1972); Alfred Sanfilippo, Ph.D. (Duke, 1975), M.D. (Duke, 1976); L. Barth Reller, M.D. (Virginia, 1966); Conrad Richter, V.M.D. (Pennsylvania, 1959); Kenneth A. Schneider, M.D. (Northwestern, 1959); John D. Shelburne, M.D. (Duke, 1972), Ph.D. (Duke, 1971); Joachim R. Sommer, M.D. (Munich, 1951); F. Stephen Vogel, M.D. (Western Reserve, 1944); Benjamin Wittels, M.D. (Minnesota, 1952).

Adjunct Professor: Paul Nettesheim, M.D., D.M.S. (Bonn, West Germany, 1959).

Associate Professors: Michael J. Borowitz, M.D., Ph.D. (Duke, 1977); Jane G. Elchlepp, M.D. (Chicago, 1955), Ph.D. (Iowa, 1948); Kenneth McCarty, Jr., M.D. (Duke, 1972), Ph.D. (Duke, 1973); Victor L. Roggli, M.D. (Baylor, 1976); John Toffaletti, Ph.D. (North Carolina at Chapel Hill, 1977); Frances King Widmann, M.D. (Case Western Reserve, 1960); Peter Zwadyk, Jr., Ph.D. (Iowa, 1971).

Clinical Associate Professor: Emily A. G. Reisner, Ph.D. (Case Western, 1969).

Adjunct Associate Professor: James A. Swenberg, D.V.M. (Minnesota, 1966), Ph.D. (Ohio, 1970).

Assistant Professors: Douglas C. Anthony, M.D. (Duke, 1984), Ph.D. (Duke, 1983); Steven J. Bredehoeft, M.D. (Kansas, 1974); Robert H. Christenson, Ph.D. (Florida State, 1980); David L. Cooper, M.D. (Florida, 1984), Ph.D. (Florida, 1978); Barbara J. Crain, M.D., Ph.D. (Duke, 1979); James D. Crapo, M.D. (Rochester, 1971); Henry S. Friedman, M.D. (New York at Syracuse, 1977); Marcia Gottfried, M.D. (Northwestern, 1978); Charles S. Greenburg, M.D. (Hahnemann, 1976); John M. Harrelson, M.D. (Duke, 1965); David Howell, M.D. (Duke, 1984), Ph.D. (Duke, 1982); Randy H. Jirtle, Ph.D. (Wisconsin, 1976); Richard M. Levenson, M.D. (Michigan, 1979); James E. Lowe, M.D. (California at Los Angeles, 1973); Ola Melhus, M.D. (Medizinische Hochschule, 1980); Alan D. Proia, M.D. (Cornell, 1980), Ph.D. (Rockefeller, 1979); L. Darryl Quarles, M.D. (Alabama, 1979); Jonathan I. Scheinman, M.D. (Illinois, 1966); Clifford S. Schold, M.D. (Arizona, 1973); Mark W. Scroggs, M.D. (Duke, 1984); Charles Steenberg, M.D. (Pennsylvania, 1978), Ph.D. (Pennsylvania, 1979); Cheryl L. Szpak, M.D. (Southwestern, 1977); J. Allan Tucker, M.D. (Vanderbilt, 1981); Philip J. Walther, M.D. (Duke, 1975), Ph.D. (Duke, 1974); Michael R. Zalutsky, Ph.D. (Washington Univ., 1974).

Assistant Clinical Professors: Jane Gaede, M.D. (Duke, 1966); Robert B. Kinney, M.D. (Duke, 1981); Robin T. Vollmer, M.D. (Duke, 1967).

Assistant Medical Research Professors: Venkataraman Amarnath, Ph.D. (Carnegie-Mellon, 1973); William M. Baldwin III, Ph.D. (Rochester, 1973), M.D. (Rochester, 1975); Steven S. Geier, Ph.D. (Duke, 1978); Mario Gonzalez-Gronow, D.Sc. (Chile, 1970); James G. Lewis, Ph.D. (Duke, 1982); Eileen M. Mikat, Ph.D. (Duke, 1979); Veronica Prpic-Uhing, Ph.D. (Australian National University, 1980); Guy S. Salvesson, Ph.D. (Cambridge Univ., 1980); Ronald J. Uhing, Ph.D. (Iowa State, 1980).

Associate Medical Research Professor: Carol W. Lewis, Ph.D. (North Carolina at Chapel Hill, 1972).

Adjunct Assistant Professors: Arnold R. Brody, Ph.D. (Colorado, 1969); Jack A. Dean, Ph.D. (Arizona, 1972); Peter Ingram, Ph.D. (Univ. of Southampton, England, 1967); Ralph C. McCoy, M.D. (Emory, 1967); James Alan Popp, D.V.M. (Ohio State, 1968), Ph.D. (California at Los Angeles, 1972); Frank A. Sedor, Ph.D. (Florida, 1971); Jerry E. Squires, Ph.D. (Yale, 1971), M.D. (West Virginia, 1974).

Associates: John A. Bittikofer, Ph.D. (Purdue, 1971); Kenneth R. Broda, Ph.D. (Duke, 1977); Margaret C. Schmidt, M.A. (Louisville, 1969), Ed.D. (Duke, 1988).

## Required Course

**PTH-200.** The core course in pathology is given during the second term of the first year. Fundamentals of pathology are presented by correlating gross and microscopic material to illustrate the structural changes in disease. Lectures dealing with broad concepts of disease processes are presented by senior faculty, and conferences with small groups of students are held under the guidance of staff members. Etiology and pathogenesis of disease, as well as the experimental approach are emphasized for the purpose of correlation with clinical disease. In addition to group work, conferences are scheduled to discuss problems derived from autopsies. Students are required to collaborate in postmortem studies and present cases in clinical-pathologic conferences under the direction of the staff.

## Electives

**PTH-223(B). Autopsy Pathology.** The course is intended to introduce students to the autopsy as an investigative tool; anatomic-clinical correlation is emphasized. Students

work directly with one or more members of the Pathology Department. They will first assist at autopsies and then perform autopsies under supervision. They will work up these cases with particular attention to correlations with clinical and experimental medicine, prepare the final autopsy reports on them, and will work essentially at the level of a house officer. Students will be expected to present their findings at staff conferences. Weight: 8. *Adams*

**PTH-225(B). Cardiovascular Pathology.** Cardiovascular diseases will be covered through lectures, CPCs, student seminars, and laboratory study of preserved hearts and associated case material. Following a brief review of cardiac embryology, anatomy, and physiology, the pathology, and pathophysiology of various types of congenital and acquired heart disease will be considered. Weight: 2. *Reimer, Hackel, Ideker, Steenberg, and Mikat*

**PTH-231(B). Ophthalmic Pathology.** This course is designed for students with an interest in ophthalmic diseases and particularly for those planning a career in pathology or ophthalmology, and will consist of lectures, seminars, and laboratory sessions. The normal anatomy and embryology of the eye will be reviewed, and the various reactions of the eye to injury will be studied in gross and microscopic specimens. The more common diseases will be considered in detail. Weight: 3. *Klintworth*

**PTH-237(B). Surgical Pathology.** This course is designed for the student who wishes more experience in the study of disease. Although the course is entitled Surgical Pathology, this does not imply interest solely in the individual oriented to surgery. Problems in dermatology, gynecology, orthopaedics, general surgery, internal medicine, and other specialties will be considered. The program of study will consist of lectures, demonstrations, and laboratory work. Microscope required (limited number available on loan). Weight: 4. *Fetter*

**PTH-241(B). Systemic Pathology.** This is a lecture course with clinicopathologic correlation, pathophysiology, and imaging that will go into more detail than the core course in pathology. It is given especially for students taking the Study Program in Pathology, but will be available as a separate elective for individual students. Lectures will be from 4-5 each Monday and Wednesday. Different topics will be included in the four eight-week-long terms. Weight: 1. *Bradford, Hackel, and Vogel*

**PTH-281(B). Cytopathology Preceptorship.** This course consists of a full-time rotation by the student in the diagnostic cytopathology laboratories. By working with the laboratory staff, the student will explore in detail the role played by exfoliative cytopathology in the diagnosis of disease. Although not a requirement, the student will be encouraged to pursue special research projects. Weight: 8. *Johnston, Bossen, Bigner, and Cytopathology staff*

**PTH-321(B). Hormone and Tissue Interactions in Differentiation and Disease.** Hormones and other biochemical signals involved in the regulation of the differentiated state including amino acids, polypeptide and steroid hormone response through higher vertebrates will be discussed in terms of the new biotechnology used to elucidate mechanisms of information transfer and gene control at the level of the chromatin. Cell-cell, cell-matrix, and hormonal interactions will be considered as control elements in development and differentiation. Interactions involving the cell surface, the basal lamina, and extracellular matrix will be discussed in terms of differentiation of limb bud/pancreas/lymphocyte/and neural tissue. Conferences will include hormone control of sex differentiation, ectopic hormone biosynthesis, and endocrine related diseases. The course is designed as an extension of the course Differentiation in Development and Disease. Weight: 2. *K. McCarty, Sr., Kaufman, and K. McCarty, Jr.*

**PTH-342(B). Special Topics in Pathology.** Special problems in pathology will be studied with a member of the senior staff; the subject matter will be individually arranged. Permission of the instructor required. Weight: 1-16. *Jennings and staff*

**PTH-346(B). Subcellular and Molecular Pathology.** This course is designed for students wishing to broaden their knowledge of cellular structure and cellular pathology. A series of lectures and seminars will be presented on the alterations in cellular structure and associated function that accompany cell injury. Ultrastructural changes in selected human diseases will be discussed in detail with emphasis on diagnosis and pathogenesis. Weight: 2. *Shelburne, Jennings, Sommer, Steenbergen, Crain, and Anthony*

**PTH-348(B). Practical Surgical Pathology.** This course will be in the form of an apprenticeship in which the student will work closely with the resident in the actual preparation and diagnosis of tissue changes. Microscope required (limited number available on loan). Prerequisites: Permission of instructor. Weight: 8. *Bossen and staff*

**PTH-353(B). Neuropathology.** A view of neuropathology that emphasizes clinicopathologic correlation. Weight: 3. *Vogel and staff*

**PTH-359(B). Fundamentals of Electron Microscopy.** Emphasis will be placed on the theory and application of electron microscopy to ultrastructural pathology. The methods relating to electron microscopy, as well as X-ray microanalysis and ion microscopy, will be considered. Laboratory experience will be included. Weight: 3. *Shelburne, Sommer, Ingram, Deschuyteneer, and LeFurgey*

**PTH-362(B). Pathology of the Kidney.** This course is a comprehensive study of pathological, immunological, and clinical features of the various types of glomerulonephritis, nephrotic syndrome, and pyelonephritis, as well as of metabolic, congenital, and neoplastic renal disorders. Lectures will be supplemented with gross and microscopic specimens, demonstrations, clinico-pathological discussions and student seminars. Weight: 3. *Sanfilippo, Howell, and Jennings*

**PTH-364(B). Skeletal Pathology.** Special problems in skeletal pathology will be dealt with beginning with a discussion of the development of connective tissue. Special emphasis on bone tumors, metabolic diseases, and traumatic problems will be considered. Weight: 2. *Harrelson*

**PTH-366(B). Pulmonary Pathology and Pathophysiology.** Emphasis will be on pulmonary pathology and pathophysiology of infections, metabolic, environmental, and neoplastic diseases, and certain diseases of unknown etiology (e.g., sarcoid, alveolar proteinosis, etc.). Weight: 3. *Pratt and Roggli*

**PTH-371(B). The Laboratory Basis for Clinical Medicine.** This course will emphasize evaluation and interpretation of laboratory data relative to pathophysiologic processes. Development of judgment and selectivity in utilizing laboratory tests will be taught. Course will consist of lectures and conferences. Clinical-pathologic correlation will be stressed by detailed case studies of specific patients. Weight: 2. *Gaede, Widmann, Pizzo, and Zwadyk*

**PTH-372(B). Environmental Diseases.** The course features guest lecturers and student presentations to cover examples of disease produced by technological exploitation of the earth and "life study." Subjects include population, respiration-air and ocean, and examples of diseases due to asbestos, lead, mercury, hydrocarbons, carcinogens, organic dusts, DDT, cigarette smoke, etc. Weight: 2. *Pratt and Roggli*

**PTH-373(B). Diagnostic Immunopathology.** The course features lectures and demonstrations to review diagnostic and laboratory procedures used in evaluating immunologic diseases; especially autoimmune, infections, immunodeficiency, immunoproliferative, and hypersensitivity disorders. Emphasis is placed on the theoretical and practical aspects of testing procedures and their proper interpretation. Weight: 2. *Sanfilippo, Zwadyk, Borowitz, Baldwin, and Howell*

**PTH-374(B). Pulmonary Structure and Function Seminar.** Current and exemplar pathological material on lungs, including gross, histologic, and electron microscopic data, is correlated with *in vitro* function and clinical features; physiological measurements; and



roentgenographic findings. The structural features of the types of reaction of lung cells to injury are interpreted against this background. Such demonstration material is correlated by lectures. Weight: 1. *Pratt, Lynn, and Roggli*

**PTH-378(B). Seminars in Hematology.** This is a systematic survey of the pathophysiology and morphology of human hematological diseases. Each student will survey the literature on several topics and prepare an oral presentation which will be critically discussed by the group. Opportunity for experience in blood marrows and lymph node analysis will be available. Weight: 2. *Wittels*

**PTH-380(B). Surgical Pathology with Emphasis on Electron Microscopy.** This course will be in the form of an apprenticeship in which the student will become engaged in the actual preparation and diagnosis of tissue changes using both light and electron microscopy. The student will, of necessity, learn how to operate the electron microscope. Prerequisites: Permission of instructor. Weight: 8. *Shelburne, Vollmer, and Tucker*

**PTH-385(B). Cancer Biology.** The course will examine the properties of the neoplastic cells and the mechanisms that lead to neoplastic transformation. The role of growth factors and oncogene expression in the definition or the establishment of the neoplastic phenotype will be given special emphasis. The properties of the neoplastic cells will be analyzed on the basis of the mechanisms of normal cell growth regulation (response of normal cells to growth factors, mechanisms of signal transduction through the plasma membrane, expression of intracellular oncogenes). Weight: 3. *Michalopoulos, Falletta, and staff.*

## Pediatrics

Wilburt C. Davison Professor Samuel L. Katz, M.D. (Harvard, 1952), *Chairman.*

Professors: Page A. W. Anderson, M.D. (Duke, 1963); James B. Sidbury Professor Rebecca H. Buckley, M.D. (North Carolina at Chapel Hill, 1958); John M. Falletta, M.D. (Kansas, 1966); Howard C. Filston, M.D. (Western Reserve, 1962); Thomas E. Frothingham, M.D. (Harvard, 1951); Herman Grossman, M.D. (Columbia, 1953); Stuart Handwerger, M.D. (Maryland, 1964); Charles R. Roe, M.D. (Duke, 1964); James B. Duke Professor Madison S. Spach, M.D. (Duke, 1954); Alexander Spock, M.D. (Maryland, 1955); Catherine M. Wilfert, M.D. (Harvard, 1962).

Associate Professors: Brenda E. Armstrong, M.D. (St. Louis, 1974); Roger C. Barr, Ph.D. (Duke, 1968); Y. T. Chen, M.D., Ph.D. (Taiwan Univ., 1973); Rosalind Coleman, M.D. (Western Reserve, 1969); G. Robert DeLong, M.D. (Harvard, 1961); Peter C. English, M.D., Ph.D. (Duke, 1975); Henry S. Friedman, M.D. (New York at Syracuse, 1977); Laura T. Gutman, M.D. (Stanford, 1963); Allen P. Killam, M.D. (Texas at Galveston, 1960); Lowell R. King, M.D. (Johns Hopkins, 1956); Thomas R. Kinney, M.D. (Duke, 1970); Joanne Kurtzberg, M.D. (New York Med. Coll., 1976); Darrell V. Lewis, M.D. (Minnesota, 1969); John G. Looney, M.D. (Texas, Southwestern, 1969); Mary Ann Morris, M.D. (Arkansas, 1972); Jonathan I. Scheinman, M.D. (Illinois, 1966); Raymond A. Sturmer, M.D. (Georgetown, 1968); Rita A. Vileisis, M.D. (Northwestern, 1975).

Assistant Professors: Edmond C. Bloch, M.B. (Univ. of Cape Town, South Africa, 1946); Rose-Mary Boustany, M.D. (Amer. Univ. of Beirut, Lebanon, 1979); William D. Bradford, M.D. (Western Reserve, 1958); Iley B. Browning III, M.D. (North Carolina at Chapel Hill, 1982); Edward G. Buckley, M.D. (Duke, 1977); Michael S. Freemark, M.D. (Duke, 1976); Nancy E. Friedman, M.D. (Med. Coll. of Virginia, 1975); Patricia S. Gerber, M.D. (Wisconsin, 1976); Jeannine L. Gingras, M.D. (Vermont, 1978); William J. Greeley, M.D. (Texas at Houston, 1976); J. David Jones, M.D. (Duke, 1954); Stephen G. Kahler, M.D. (Duke, 1973); Raymond S. Kandt, M.D. (Virginia, 1976); Ronald J. Kanter, M.D. (Vanderbilt, 1979); M. Louise Markert, M.D., Ph.D. (Duke, 1982); Ross E. McKinney, Jr., M.D. (Rochester, 1979); Andre A. Muelenaer, Jr., M.D. (Eastern Virginia, 1979); W. Jerry Oakes, M.D. (Duke, 1972); Karen J. O'Donnell, Ph.D. (North Carolina at Chapel Hill, 1983); Aglaia N. O'Quinn, M.D. (Duke, 1965); Shirley K. Osterhout, M.D. (Duke, 1957); M. Henderson Rourk, Jr., M.D. (Pennsylvania, 1963); Richard I. Schiff, M.D., Ph.D. (Duke, 1976); Nicholas A. Shorter, M.D. (Johns Hopkins, 1979); Deborah L. Squire, M.D. (Northwestern, 1978); David T.H. Tanaka, M.D. (Johns Hopkins, 1979); Robert J. Thompson, Jr., Ph.D. (North Dakota, 1971); Marjorie Tripp, M.D. (Yale, 1973); Ross M. Ungerleider, M.D. (Rush, 1977); Mary E. L. Vernon, M.D. (Columbia, 1976); Richard J. Wenstrup, M.D. (Cincinnati, 1978); Delbert R. Wigfall, M.D. (Emory, 1979); Gordon Worley, M.D. (Harvard, 1973).

Associates: Martha Bird, M.D. (Kentucky, 1982); John L. Boyd III, M.D. (New York Univ., 1976); Sara Chaffee, M.D. (Dartmouth, 1980); Robert Drucker, M.D. (Duke, 1979); Robert D. Fitch, M.D. (Duke, 1976); Ricki F. Goldstein, M.D. (Cornell, 1981); Frank H. Kern, M.D. (Pennsylvania, 1982); Robert J. Mead, Jr., M.D. (Jefferson, 1978); John W. Moses, M.D. (Med. Univ. South Carolina, 1983); F. Bennett Pearce, M.D. (Louisiana State, 1985); Catherine J. Rose, M.D. (West Virginia, 1981); Jeffrey D. Snedeker, M.D. (Wisconsin, 1982); Karen K. Ste. Claire, M.D. (Texas at Galveston, 1982).

Clinical Professor: W. Samuel Yancy, M.D. (Duke, 1965).

Associate Clinical Professors: Deborah W. Kredich, M.D. (Michigan, 1962); Lois A. Pounds, M.D. (Pittsburgh, 1965).

Assistant Clinical Professors: Marcia Herman-Giddens, P.A. (Duke, 1968); Ave Maria Lachiewicz, M.D. (Minnesota, 1980); Sandra N. Lehrman, M.D. (Brown, 1976); Nancy Martin-Johnson, Ph.D. (North Carolina at Chapel Hill, 1961); Christine Rudd, Pharm.D. (North Carolina at Chapel Hill, 1973).

Clinical Associates: Norman B. Allard, Ph.D. (Cornell, 1984); Joanne Barton, M.Sc. (Kentucky, 1974); Mary Jane Burns, M.S.W. (North Carolina at Chapel Hill, 1976); Pamela L. W. Carter, M.E.D. (Old Dominion, 1987); Muki W. Fairchild, M.S.W. (North Carolina at Chapel Hill, 1976); Martha Ann Keels, D.D.S. (North Carolina at Chapel Hill, 1984); Allyn McConkie-Rosell, M.S.W. (Arkansas, 1980); F. Brandon McDaniel, M.S.W. (North Carolina at Chapel Hill, 1979); Mary V. Moggio, M.S.P.H. (North Carolina at Chapel Hill, 1972); Sally Robinson, Ph.D. (Peabody, 1983); Lynn R. Rosenfeld, M.S.W. (Maryland, 1976); William H. Schultz, P.A. (Duke, 1981); N. Maxine Soloway, Ph.D. (North Carolina at Greensboro, 1985); A. William Taub, M.S.W. (North Carolina at Chapel Hill, 1981).

Associate Medical Research Professor: David S. Millington, Ph.D. (Liverpool, England, 1969).

Assistant Medical Research Professors: Dianne Y. Bell, Ph.D. (North Carolina State, 1976); Paul C. Dolber, Ph.D. (Johns Hopkins, 1973); J. Francis Heidlage, Ph.D. (Missouri, 1978); Nancy G. Henshaw, Ph.D. (North Carolina at Chapel Hill, 1983); Daniel L. Norwood, Ph.D. (North Carolina at Chapel Hill, 1985); Randall G. Richards, Ph.D. (Duke, 1982).

Consulting Professors: William J. A. DeMaria, M.D. (Duke, 1948); Thomas K. Oliver, Jr., M.D. (Harvard, 1949).

Associate Consulting Professors: William L. London, M.D. (North Carolina at Chapel Hill, 1955); Howard H. Loughlin, M.D. (Pennsylvania, 1970); Adhemar W. Renuart III, M.D. (Duke, 1955); Evelyn Schmidt, M.D. (Duke, 1951).

Assistant Consulting Professors: Clarence Bailey, M.D. (North Carolina at Chapel Hill, 1955); Joanna S. Daldorf, M.D. (Cornell, 1958); James S. Hall, M.D. (Duke, 1957); Alvin H. Hartness, M.D. (Bowman Gray, 1965); Thomas M. McCutchen, M.D. (Vanderbilt, 1963); Charles B. Neal, M.D. (Duke, 1955); T. Michael D. O'Shea, M.D. (North Carolina at Chapel Hill, 1980); Nicholas A. Patrone, M.D. (Loyola, 1976); John C. Pollard, M.D. (Virginia, 1968); William C. Powell, M.D. (Bowman Gray, 1952); Jimmie L. Rhyne, M.D. (Maryland, 1948); A. Douglas Rice, M.D. (Duke, 1951); James B. Rouse, M.D. (Duke, 1965); Robert J. Senior, M.D. (Jefferson, 1955); Frank S. Shaw, M.D. (Pennsylvania, 1959); Charles I. Sheaffer, M.D. (Western Reserve, 1958); S. Winston Singleton, M.B. (Manchester, England, 1952); Leonard D. Stein, M.D. (Med. Coll. of Georgia, 1975); J. Gordon, Still, M.D. (Bowman Gray, 1978); Fred R. Stowe, M.D. (North Carolina at Chapel Hill, 1958).

Consulting Associates: Lillis Altshuler, M.D. (Cincinnati, 1960); R. Meade Christian, Jr., M.D. (Western Reserve, 1967); Douglas W. Clark, M.D. (North Carolina at Chapel Hill, 1983); William G. Conley, M.D. (Med. Coll. of Virginia, 1960); W. LaDell Douglas, M.D. (Georgetown, 1974); Jean M. Findlay, M.B. (Aberdeen Univ. Med. Sch., Scotland, 1970); Gregory A. Fisher, M.D. (South Florida, 1976); Martha E. Gagliano, M.D. (Duke, 1982); Richard J. Gugelmann, M.D. (Texas at Galveston, 1971); Larry C. Harris, M.D. (Duke, 1977); Rufus McP. Herring, Jr., M.D. (Bowman Gray, 1969); Carl S. Hesselbart, M.S.W. (Michigan, 1980); Jennifer L. Lail, M.D. (Kentucky, 1978); Charles W. Lallier, M.D. (Virginia, 1981); Pierre C. LeMaster, M.D. (Florida, 1971); Donald N. Ludlow, Jr., M.D. (Hahnemann, 1983); Larry Mumford, M.D. (North Carolina at Chapel Hill, 1967); Janice D. Stratton, M.D. (Tulane, 1961); Joseph W. Whatley, Jr., M.D. (Duke, 1958).

Emeriti: Jay M. Arena, M.D.; William Cleland, M.D.; Susan C. Dees, M.D.; Jerome S. Harris, M.D.; Bailey D. Webb, M.D., Ph.D.

## Required Course

**PED-205.** The basic course in pediatrics for all students is an eight-week clerkship in the second year. Its principal aim is to provide an exposure to the field of child health. The student has a varying series of experiences which should give a grasp of the concepts that underlie the discipline. Goals should be to acquire familiarity and competence with the basic tools of information-gathering the history, physical examination, and laboratory data and to develop an approach to the integration of this material for the solution of problems of health and illness in infancy, childhood, and adolescence. This should be accomplished with continuing reference to the basic principles of pathophysiology encountered in the first year courses.

Those patients to whom the student is assigned will provide the focus for case studies. In addition to the careful history and physical examination which must be recorded, the student is expected to organize an appropriate differential diagnosis and to seek and read pertinent reference material relevant to each patient. The student should learn to present each case verbally in an organized and succinct fashion, to follow the patient's progress, and to interpret all studies which are performed. The student is expected to learn from a number of sources: standard textbooks and journals, current publications and conferences, and also from people—house staff, faculty, nurses, parents, and all others with whom contact is made in the clinical setting.

Objectives should also include an understanding of the roles played in pediatrics by other members of the health care team, both in the ambulatory and hospital settings. Patient care may include nurse, social worker, recreation therapist, psychologist, physiotherapist, dietitian, and/or others. The eight weeks will be divided to include time into several of the following settings: (a) Duke outpatient clinics and emergency room, (b) Duke inpatient, Durham County General Hospital, (d) Duke nursery, (e) Lincoln Community Health Center.

## Electives

**PED-210 (C). Advanced Pediatrics.** There are a variety of possibilities. In advance of signing up for this course, arrangements are to be made with departmental division chiefs as appropriate to the student's interest. The departmental divisions and chiefs are: Allergy/Immunology, Rebecca Buckley, M.D.; Cardiology, Madison Spach, M.D.; Endocrinology, Stuart Handwerker, M.D.; Epidemiology, Seymour Grufferman, M.D.; General, Peter C. English, M.D., Ph.D.; Genetics/Metabolism, Charles Roe, M.D.; Hematology/Oncology, John Falletta, M.D.; Infectious Diseases, Catherine Wilfert, M.D.; Nephrology, Jonathan Scheinman, M.D.; Neurology, Robert DeLong, M.D.; Perinatal Medicine, Rita A. Vileisis, M.D.; Pulmonary/GI, Alexander Spock, M.D. Another option relates to several county health departments. On Monday through Thursday (four days a week) the student will travel with the pediatric senior resident to each of four rural county health departments in order to participate in the child health and pediatric activities in collaboration with public health nurses and child health clinicians. On the order of two hours a day driving time will permit a one-on-one tutorial with the senior resident. Requirements and restrictions: One student at a time, for a minimum of two weeks; before-the-course interviews with Ms. Joanne Barton, PNP and with Dr. English. A short paper on some aspect of rural child health or pediatric medicine. Weight: 1-8. *English and Departmental Division Chiefs*

**PED-211 (C). Pediatric Infectious Diseases.** This course will provide experience in the clinical and laboratory diagnosis of infectious diseases and in their therapy. The student works closely with the infectious disease fellow and participates actively in evaluation of patients. Daily rounds in microbiology laboratory and participation in Monday infectious disease conferences are required. Prerequisites: Contact Dr. Wilfert prior to enrollment. Weight: 4-8. *Wilfert, McKinney, Gutman, Lehrman, Katz, Drucker, and Snedeker*

**PED-215 (C). Endocrine Disorders in Children.** Students participate in the pediatric endocrine and pediatric diabetes clinics and in the inpatient activities of the endocrine division. Students also participate in the endocrine journal club and interdepartmental endocrine conferences. Emphasis is placed on the evaluation of growth and sexual development as indices of endocrine status during childhood. Prerequisite: Contact instructors. Weight: 4 or 8. *Handwerker, Morris, Friedman, and Freemark*

**PED-217 (C). Pediatric Hematology and Oncology.** Includes all aspects of clinical and laboratory pediatric hematology, as well as the diagnostic valuation, care, and treatment of patients with malignant diseases. Emphasis will be placed on fundamental concepts. There will be daily ward rounds, three weekly clinics, conferences and seminars, as well as assigned reading. Students will be encouraged to engage in some individual clinical laboratory project during the period of the course. Prerequisite: Contact instructor. Weight: 4 or 8. *Faletta, Kinney, Kurtzburg, and Friedman*

**PED-221 (C). Poison Control.** Primarily a seminar course with one two-hour conference per week scheduled for student discussion on assigned topics. The student may participate in clinical functions of the center and if desired may be on call for the treatment of these cases in the emergency room or the ward. This is a student-oriented teaching program and individual projects on the subject may also be carried out. Weight: 2. *Shirley Osterhout*

**PED-225 (C). Neonatology.** Students will have patient care responsibilities and experiences in the Duke North Intensive Care Nursery. The course involves direct participation in patient care under the supervision of the faculty and house staff. Emphasis is placed on the initiation of parent-child relationships, and a pathophysiologic approach to assessment and management of the critically ill neonate. Student may not drop within sixty days of the starting date without finding a replacement. No other courses are to be taken in conjunction with PED-225. Weight: 4. *Tanaka, Gingras, and Vileisis*

**PED-227 (C). Behavioral Aspects of Pediatrics.** This course will offer trainees the opportunity to work as a part of an interdisciplinary team in diagnosing and treating children and adolescents (ages two to twenty-one) with a variety of psychiatric and psychosocial problems. Presenting problems might include: anorexia nervosa, bulimia, enuresis, encopresis, school phobia, psychosomatic disorders, tourette syndrome, suicidal and acting-out adolescents, chronically or terminally ill children, and child abuse and neglect cases. Trainees will be taught and will clinically apply principles of child and adolescent development and psychoanalytic family systems theory. The trainee will be involved in child, parent, and family interviews and treatment and will function as an integral part of the treatment team to experientially learn about the diagnosis and treatment of a wide variety of child and adolescent disorders. There will be an opportunity to be involved in the inpatient and outpatient treatment process on pediatric and adolescent psychiatric wards. (See also PSC-227.) Weight: 2-6. *Jones, Lee, Ms. Pratt, and Ms. Burns*

**PED-231 (C). Clinical Pediatric Cardiology.** Provides an intensive learning experience in clinical diagnosis and management of childhood heart disease. Emphasis is placed on the preoperative and postoperative management of children with operable heart disease as well as upon the management of children with nonoperable heart disease. Finally, the student is exposed to pediatric acute care medicine and modalities available to maintain cardiovascular function in the extremely ill child. Scope: history, physical examination, and special diagnostic techniques (electrocardiography, phonocardiography, echocardiography, cardiac catheterization, and cineangiography). Prerequisites: PED-205. Weight: 4 or 8 (with special permission of instructor). *Armstrong*

**PED-233 (C). Allergy and Clinical Immunology.** Clinical evaluation and practice in use and methods of diagnosis and treatment of allergic and immunologic disorders including, the atopic diseases, immunologic deficiency states and bone marrow transplantation. Scope: history, physical examination, skin testing and a variety of clinical immunologic tests, and clinical research unit experience. Weight: 4 or 8. *R. Buckley, Schiff, Gerber, and Markert*

**PED-234 (C). Clinical Genetics and Metabolism.** The student will become familiar with evaluation and management of various genetic disorders, including malformation syndromes and biochemical disorders. History taking, pedigree construction and analysis, diagnostic techniques, laboratory tests (cytogenetic, biochemical, DNA), genetic counseling and use of reference materials are emphasized. Experience in obstetrics (prenatal diagnosis) and internal medicine are available depending on the interests of the student. May take with BCH-234(B). Weight: 4. *Kahler*

**PED-241 (C). Pediatric Nephrology.** Course is designed to provide experience in diagnosis, interpretations of laboratory tests, natural history, and treatment of acute and chronic disorders of the kidney in children. Students are also exposed to the management of fluid and electrolyte disorders in infants and children. Prerequisites: PTH 362B suggested. Prior approval of Dr. Scheinman. Weight: 4 or 8. *Scheinman and Wigfall*

**PED-243 (C). Adolescent Medicine.** Students will participate in a weekly seminar with emphasis on the behavioral and developmental aspects of adolescence, drug abuse, and the pregnant teenager. Patient interactions will be arranged depending on student

time availability and clinic scheduling. Tutorial and supervisory time to discuss specific patients and pertinent literature will be arranged. Weight: 2. *Yancy and Fairchild*

**PED-250 (C). Advanced General Pediatrics, Pediatric Intensive Care Unit.** This advanced course is designed to allow students a four-week experience as a subintern in the pediatric intensive care unit. Under supervision of faculty attendings and resident house-staff the senior student will assume primary responsibility for the care of critically ill children admitted to the medicine and surgery services in the pediatric intensive care unit. Emphasis will be placed on the development of a pathophysiologic approach to the diagnosis and therapy of a broad spectrum of pediatric illnesses as they present in acute care settings. Advanced concepts in pediatric critical care will be emphasized. Students will rotate night call with resident pediatric housestaff. Prerequisite: PED-205. Weight: 4. *Armstrong and Greeley*

**PED-281 (C). Pediatric Neurology.** Students will examine both hospitalized and ambulatory patients with neurological disorders. Emphasis is placed on the neurological history, examination, and the investigation and management techniques of nervous system disorders of infancy, childhood and adolescence. Prerequisites: Contact Dr. DeLong. Weight: 4 or 8. *DeLong*

## Pharmacology

Professor Saul M. Schanberg, M.D. (Yale, 1964); Ph.D. (Yale, 1961), *Acting Chairman*.

Professors: Mohamed Abou-Donia, Ph.D. (California at Berkeley, 1966); James Norman Davis, M.D. (Cornell, 1965); Everett H. Ellinwood, M.D. (North Carolina at Chapel Hill, 1959); Norman Kirshner, Ph.D. (Pennsylvania State, 1952); Leon Lack, Ph.D. (Columbia, 1953); Elliott Mills, Ph.D. (Columbia, 1964); Athos Ottolenghi, M.D. (Univ. of Pavia, 1946); Theodore Slotkin, Ph.D. (Rochester, 1970); Harold C. Strauss, M.D., C.M. (McGill Univ., 1964) Walter D. Watkins, Ph.D. (Michigan, 1971), M.D. (Colorado, 1975); Pelham Wilder, Ph.D. (Harvard, 1950).

Associate Professors: Laura E. Gutman, M.D. (Stanford, 1962); Cynthia M. Kuhn, Ph.D. (Duke, 1975); James O. McNamara, Sr., M.D. (Michigan, 1968); Julian Victor Nadler, Ph.D. (Yale, 1972); Charles B. Nemeroff, Ph.D. (North Carolina at Chapel Hill, 1976), M.D. (North Carolina at Chapel Hill, 1981); A. Richard Whorton, Ph.D. (Vanderbilt, 1975).

Assistant Professors: Warner M. Burch, Jr., M.D. (Bowman Gray, 1971); Clinton D. Kilts, Ph.D. (Michigan State, 1979); James E. Nield, M.D. (Miami, 1973), Ph.D. (Miami, 1974); Rochelle D. Schwartz, Ph.D. (Georgetown, 1983).

Medical Research Professor: Gertrude Elion, D.Sc. (George Washington, 1969).

Medical Research Associate Professors: Jorge Bartolome, Ph.D. (Univ. of Chile, 1978); Wilkie A. Wilson, Ph.D. (Duke, 1971).

Medical Research Assistant Professors: Jane Knoth, Ph.D. (Wayne State, 1984); Daniel M. Lapadula, Ph.D. (New York Univ., 1981); Frederic J. Seidler, Ph.D. (Duke, 1986); Ying-Fu Su, Ph.D. (Colorado, 1978); Robert L. Wolpert, Ph.D. (Princeton, 1976).

Medical Research Associate: Gayle Gross de Nunez, Ph.D. (North Carolina at Chapel Hill, 1983).

Adjunct Professors: Kwen-Jen Chang, Ph.D. (New York at Buffalo, 1972); Pedro Cuatrecasas, M.D. (Washington Univ., 1962); James E. Gibson, Ph.D. (Iowa, 1969); Robert A. Neal, Ph.D. (Vanderbilt, 1963).

Adjunct Associate Professors: Neil Chernoff, Ph.D. (Miami, 1969); Donald E. Gardner, Ph.D. (Cincinnati, 1971); Humberto Viveros, M.D. (Univ. of Chile, 1962).

Adjunct Assistant Professors: Joanne M. Bell, Ph.D. (Washington Univ., 1983); Richard J. Kavlock, Ph.D. (Miami, 1977); Christopher Lau, Ph.D. (Duke, 1982).

Emeritus: Frederick Bernheim, Ph.D.

## Required Course

**PHR-200. Pharmacology: Mode of Action of Drugs.** A basic course in pharmacology describing the action of drugs in terms of biochemical and physiological processes, and the rationale for their use in clinical therapy. Four lectures, one clinical correlation and one conference per week. 4 units. *Staff*

## Electives

**PHR-219(B). Tutorial in Pharmacology.** Guided independent study of original literature and/or laboratory experience. Open to all students; required of those electing a preclinical base in the Department of Pharmacology. Prerequisites: Consent of instructor. Weight: 1-8. *Staff*

**PHR-233(B). Principles of Pharmacology and Toxicology.** Drug absorption, distribution, excretion and metabolism, basic and clinical pharmacokinetics, Hansch correlation of structure and activity, stereo-chemistry, and drug action. Drug receptor theory and its practical applications, pharmacokinetics and pharmacodynamics of toxic substances. Offered in alternate years. Weight: 3. *Slotkin and staff*

**PHR-254(B). Mammalian Toxicology.** Principles of toxicology as related to humans. Emphasis will be placed on the molecular basis for toxicity of chemical and physical agents. Subjects will include metabolism and toxicokinetics; toxicologic evaluation; pesticides; metals and industrial chemicals, solvent toxicity, food additives and natural toxins; radiation and radioactive materials; mutagenicity, pathology, carcinogenicity, immunology, teratogenicity; reproductive system; pulmonary, liver, kidney, eye, blood, behavioral cardio- and neurotoxicology; management of poisoning, epidemiology, risk assessment, and regulatory toxicology. Taught in alternate years in the spring semester. Weight: 4. *Abou-Donia and staff*

**PHR-264(B). Neurotoxicology.** Adverse effects of drugs and toxicants on the central and peripheral nervous system. Target sites, pathophysiology, and factors affecting toxicity. Experimental methods for detection and screening of neurotoxic chemicals. Screening and assessment of neurotoxicity in people. Weight: 3. *Abou-Donia*

**PHR-330(B). Pharmacological Basis of Clinical Medicine.** This course consists of a detailed analysis of the mechanism of action and rationale for use of pharmacologic agents in disease states. Weight 4. *Niedel and staff*

**PHR-331(B). Laboratory Methods in Pharmacology.** Prerequisites: permission of instructor. Weight: 6. *Staff*

**PHR-360(B). Neuropharmacology.** Seminar-lecture course emphasizing neurotransmitter mechanisms and the mechanism of action of drugs used to modify nervous system function. Material will be drawn from the recent literature. Offered in alternate years. Weight: 3. *Nadler*

**PHR-372(B). Research in Pharmacology.** Laboratory investigation in various areas of pharmacology. Credit to be arranged 1-18. *Staff*

**PHR-417(B). Cellular Endocrinology.** Current concepts of the mechanisms of action of hormones at the cellular level; including hormone-receptor interactions; secondary messenger, regulation of protein synthesis, growth and differentiation, control of salt and water balance, regulation of substrate storage and mobilization, modulation of hormone secretion. Also listed as CBI-417(B). Weight: 2. *Caron, N. Anderson, Padilla, and guest faculties*

**PHR-423(B). Neurobiological Basis of Behavior.** The course surveys neuroanatomical, neurophysiological, neurochemical, and neuropharmacological evidence of central nervous system function as it relates to normal and abnormal behavior. Clinical description, measurement of function, as well as the biological substrates of affective disorders and psychoses, will be emphasized. Scientific bases of current therapeutic procedures, especially psychopharmacological, will be examined. Prerequisite: Familiarity with basic neuroanatomy, neurophysiology and neuropharmacology is assumed. Weight: 4. *Ellinwood and staff*

## Psychiatry

Professors: Bernard J. Carroll, B.M., B.S. (Univ. of Melbourne, 1964); Ph.D. (Univ. of Melbourne, 1971), *Chairman.*

### DIVISION OF BIOLOGICAL PSYCHIATRY

Associate Professor: Charles B. Nemeroff, M.D., Ph.D. (North Carolina at Chapel Hill, 1981), *Head of Division.*

Professors: Bernard J. Carroll, M.B. (Univ. of Melbourne, 1964); Ph.D. (Univ. of Melbourne, 1971); Everett H. Ellinwood, Jr., M.D. (North Carolina at Chapel Hill, 1959); C. William Erwin, M.D. (Texas, 1960); Roy J. Mathew, M.B. (Med. Coll. of Trivandrum, India, 1970); Saul M. Schanberg, M.D., Ph.D. (Yale, 1964); Theodore A. Slotkin, Ph.D. (Rochester, 1970); Redford B. Williams, Jr., M.D. (Yale, 1967); William K. Zung, M.D. (Texas, 1961).  
 Consulting Professor: Richard J. Wyatt, M.D. (Johns Hopkins, 1964).  
 Adjunct Professor: Jau-Shyon Hong, Ph.D. (Kansas, 1973).  
 Associate Professors: Steven Lipper, M.D., Ph.D. (Boston, 1972); Richard Weiner, M.D., Ph.D. (Duke, 1973).  
 Assistant Professors: Garth Bissette, Ph.D. (North Carolina State, 1982); C. Edward Coffey, M.D. (Duke, 1979); Clinton D. Kilts, Ph.D. (Michigan, 1979); K. R. R. Krishnan, M.D. (Madras Med. Coll., 1978); Rochelle Schwartz, Ph.D. (Georgetown, 1983); Daniel C. Sullivan, M.D. (Vermont, 1970).  
 Assistant Clinical Professor: Stephen L. Oxley, M.D. (Kentucky, 1973).  
 Assistant Consulting Professors: P. K. George, M.D., Ph.D. (All India Inst., 1969); Joseph A. Johnston, Pharm. D. (Tennessee, 1976); David L. Katz, M.D. (Duke, 1982); Kumari Verghese, M.D. (Kasturba Medical College, 1972).  
 Assistant Medical Research Professors: Pamela D. Butler, Ph.D. (City Univ. of New York, 1986); Scott T. Cain, Ph.D. (Northwestern, 1985); Syam Sundar, Ph.D. (India Inst. of Medical Services, 1978).  
 Associates: Lawrence A. Dunn, M.D. (Michigan, 1984); Veeraindar Goli, M.D. (Osmania Medical College, 1978); Jerry R. Lithman, M.D. (Florida, 1974); W. Vaughn McCall, M.D. (Duke, 1984); Krishnaiah Rayasam, M.D. (Andhra Medical College, 1973).  
 Clinical Associates: Ursula Goebels, M.A. (Illinois, 1983); Lesley J. Hughes, M.D. (Marshall, 1985).  
 Consulting Associate: Deborah L. Dallam, M.D. (Meharry, 1982); Ugo Goetzl, M.D. (New York Med. Coll., 1968); Howard K. Mason, M.D. (Michigan, 1974).  
 Research Associates: Samir K. Gupta, Ph.D. (West Virginia, 1986); David F. Naftolowitz, M.D. (Albany, 1986); Arlene Nikaido, Ph.D. (Hawaii, 1982); Vijaya K. P. Rao, M.D. (Gandhi Medical College, 1984).  
 Associate in Research: Deborah A. Reed, M.S.N. (North Carolina at Chapel Hill, 1985).

## DIVISION OF CHILD AND ADOLESCENT PSYCHIATRY

Professor: John G. Looney, M.D. (Southwestern, 1969), *Head of Division*.  
 Visiting Research Professor: Robert Coles, M.D. (Columbia, 1954).  
 Associate Professors: J. David Jones, M.D. (Duke, 1954); Charles R. Keith, M.D. (Harvard, 1961).  
 Associate Clinical Professor: W. Samuel Yancy, M.D. (Duke, 1961).  
 Associate Consulting Professor: Edgar P. Nace, M.D. (Wisconsin, 1966).  
 Assistant Professors: Marcelino Amaya, M.D. (Univ. Nacional Autonoma de Mexico, 1954); William B. Anderson, M.D. (Minnesota, 1948); Adrian C. Angold, B.Sc. (London Hospital Medical School, 1976); James E. Lee, M.D. (Duke, 1979); Aglaia N. O'Quinn, M.D. (Duke, 1965).  
 Assistant Clinical Professor: Karl Stevenson, M.D. (Bowman Gray, 1966).  
 Assistant Consulting Professors: Cesar Guajardo, M.D. (Univ. de Nuevo Leon, Mexico, 1961); Ingrid Pisetsky, M.D. (Albert Einstein, 1971); William Shamblin, M.D. (Alabama, 1971).  
 Associate: Martha A. Bird, M.D. (Kentucky, 1978).  
 Clinical Associates: Lucy T. Davis, Ed.D. (Columbia, 1955); Frank B. Miller, M.D. (Michigan, 1974); Donald L. Rosenblitt, M.D. (Duke, 1973).  
 Consulting Associates: Linwood R. Aillsbrook, M.D. (Kentucky, 1981); Mary E. Berman, M.D. (Michigan State, 1977); Sandra I. Cohen, M.D. (New York Med. Coll., 1979); Jan N. Cools, M.D. (Duke, 1982); Thomas C. Cornwall, M.D. (Northwestern, 1970); Carl S. Hesselbart, A.C.S.W. (Michigan, 1980); Nancy J. Livingston, M.D. (Duke, 1972); William Mackey, M.D. (Tennessee, 1969); Jane L. Pope, M.D. (Louisville, 1972); Daphne Rosenblitt, M.D. (Duke, 1974); David A. Smith, M.D. (Alabama, 1980); Jean G. Spaulding, M.D. (Duke, 1972).  
 Instructors: Alice F. Long, M.A. (Chicago, 1953); Joseph J. Simmons, M.A. (North Carolina Central, 1982); Barbara J. Smith, M.Ed. (North Carolina Central, 1983).

## DIVISION OF GENERAL PSYCHIATRY

Professor: Jesse O. Cavenar, Jr., M.D. (Arkansas, 1963), *Head of Division*.  
 Professor: Frederick R. Hine, M.D. (Yale, 1949).  
 Associate Professors: Steven Lipper, M.D. (Boston, 1972); Allan A. Maltbie, M.D. (Emory, 1969).  
 Associate Clinical Professor: Harold Silberman, M.D. (Washington, 1956).  
 Associate Consulting Professor: Pedro J. Irigaray, M.D., (Univ. Nacional Autonoma de Mexico, 1955).  
 Assistant Professors: Elliott B. Hammett, M.D. (Duke, 1966); Kenneth J. W. Rockwell, M.D. (Duke, 1961); Ervin Thompson, M.D. (Vanderbilt, 1972).  
 Assistant Clinical Professors: Marc D. Feldman, M.D. (Dartmouth, 1984); Conrad C. Fulkerson, M.D. (Missouri, 1969); Christine Machemer, M.D. (Univ. of Freiburg, 1959); Indira M. Varia, M.D. (Shah Medical College, 1968); Patricia A. Ziel, M.D. (Michigan, 1968).  
 Associates: Harold S. Kudler, M.D. (State Univ. of New York, 1979); Steven L. Mahorney, M.D. (Louisiana, 1973); William M. McDonald, M.D. (Duke, 1984); Linda Roghelia, B.S. (Campbell, 1968); William C. Siegel, M.D. (Stanford, 1980); Michael R. Volow, M.D. (Seton Hall, 1964).

Clinical Associates: Joseph M. Cools, M.D. (Michigan, 1979); Jacqueline M. Feldman, M.D. (Texas at Houston, 1983); Elizabeth H. King, M.D. (Duke, 1958); Linda H. Rubin, M.P.H. (North Carolina at Chapel Hill, 1978); Robert E. Winton, M.D. (Vanderbilt, 1972).

Consulting Associates: Lesley Braasch, M.D. (New York, 1970); Roy M. Stein, M.D. (Duke, 1980).

## DIVISION OF GERIATRIC PSYCHIATRY

Professor: Dan G. Blazer, M.D. (Tennessee, 1969), Ph.D. (North Carolina at Chapel Hill, 1980), *Head of Division*.  
Professors: Daniel T. Gianturco, M.D. (Buffalo, 1960); Hsio-Shan Wang, M.D. (National Taiwan Univ., 1953); Alan D. Whanger, M.D. (Duke, 1956).

Assistant Professor: John C. S. Breitner, M.D., M.P.H. (Pennsylvania, 1970).

Associate: Frank E. Shelp, M.D. (Med. Coll. of Virginia, 1984).

Medical Research Associate: Connie Service, M.P.H. (North Carolina at Chapel Hill, 1979).

Research Associates: James R. Bachar, Ph.D. (Pittsburgh, 1969); Bruce Burchett, Ph.D. (Carleton, 1983); Sharon M. Wallsten, B.S.N., M.P.H. (Michigan, 1965).

Associate in Psychiatry: Nancy Fowler, M.Ed. (North Carolina at Chapel Hill, 1971).

## DIVISION OF MEDICAL PSYCHOLOGY

Professor: Robert J. Thompson, Ph.D. (North Dakota, 1971), *Head of Division*.

Professors: Irving A. Alexander, Ph.D. (Princeton, 1949); Robert C. Carson, Ph.D. (Northwestern, 1957); Edward Clifford, Ph.D. (Minnesota, 1957); W. Edward Craighead, Ph.D. (Illinois, 1970); Herbert F. Crovitz, Ph.D. (Duke, 1970); Martin Lakin, Ph.D. (Chicago, 1955); Susan Schiffman, Ph.D. (Duke, 1970); Richard Surwit, Ph.D. (McGill, 1972); Jay M. Weiss, Ph.D. (Yale, 1967).

Consulting Professor: Darwin Dorr, Ph.D. (Florida State, 1969).

Adjunct Professor: Florence Kaslow, Ph.D. (Bryn Mawr, 1969).

Associate Professors: James Blumenthal, Ph.D. (Washington, 1975); Elaine K. Crovitz, Ph.D. (Duke, 1964); V. Kay Hodges, Ph.D. (Maryland, 1974); Francis J. Keefe, Ph.D. (Ohio, 1975); Patrick Logue, Ph.D. (North Dakota, 1965); Gail R. Marsh, Ph.D. (Iowa, 1968); Robert Shipley, Ph.D. (Michigan State, 1972); Derek Shows, Ph.D. (Duke, 1967); Ilene Siegler, Ph.D. (Syracuse, 1973); William H. Wilson, Ph.D. (Vanderbilt, 1973).

Associate Clinical Professor: Jack D. Edinger, Ph.D. (Virginia Commonwealth, 1971).

Adjunct Associate Professor: Paul T. Costa, Jr. Ph.D. (Chicago, 1970).

Associate Consulting Professor: Lenore Behar, Ph.D. (Duke, 1973).

Associate Medical Research Professor: Gerda Fillenbaum, Ph.D. (London, 1966).

Assistant Professors: Norman B. Anderson, Ph.D. (North Carolina at Greensboro, 1983); Daniel J. Burbach, Ph.D. (Missouri, 1988); Elizabeth Costello, Ph.D. (Univ. of London, 1981); Charles F. Emery, Ph.D. (Southern California, 1985); Karen M. Gil, Ph.D. (Western Virginia, 1985); Steven Herman, Ph.D. (Duke, 1977); John S. Jordan, Ph.D. (Ohio State, 1984); John E. Lochman, Ph.D. (Connecticut, 1976); Karen O'Donnell, Ph.D. (North Carolina at Chapel Hill, 1983); Clive Robins, Ph.D. (New York State, 1982); Anna L. Stout, Ph.D. (South Carolina, 1980); Russell F. Tomlinson, Ph.D. (Florida, 1957); Kathleen A. Welsh, Ph.D. (Virginia, 1985).

Assistant Clinical Professors: John Barrow, Ph.D. (Houston, 1971); Tracey Potts Carson, Ph.D. (Georgia, 1982); Mark Feinglos, M.D. (McGill, 1973); Martin Ionescu-Pioggia, Ph.D. (North Carolina at Chapel Hill, 1985); Nancy Johnson-Martin, Ph.D. (North Carolina at Chapel Hill, 1961); Ronette L. Kolotkin, Ph.D. (Minnesota, 1978); Rodney L. Lowman, Ph.D. (Michigan State, 1979); Richard Lucas, Ph.D. (North Carolina at Chapel Hill, 1972); Jerri M. Oehler, Ph.D. (Duke, 1984); Joseph E. Talley, Ph.D. (Virginia, 1977).

Adjunct Assistant Professors: Ralph Cooper, Ph.D. (Rutgers, 1973); James A. Green, Ph.D. (North Carolina at Chapel Hill, 1979).

Adjunct Assistant Medical Research Professor: Sandra Funk, Ph.D. (North Carolina at Chapel Hill, 1976).

Assistant Consulting Professors: William D. Barley, M.D. (Texas Tech., 1980); Louise Lampron, Ph.D. (Tennessee, 1983); Belinda R. Novik, Ph.D. (Michigan State, 1978).

Medical Research Associate: Edward Suarez, Ph.D. (Miami, 1986).

Clinical Associates: Hendey Buckley, Ph.D. (Duke, 1980); Mary Luckhardt, Ph.D. (Connecticut, 1978); Charles L. McCoy, Ph.D. (Peabody, 1986); Sally Robinson, Ph.D. (Peabody, 1983); Henry Roth, Ph.D. (Duke, 1977); Richard R. Rumar, Ph.D. (North Carolina at Chapel Hill, 1982).

Instructors: Joseph Kertesz, M.A. (Michigan, 1973); Brian Stabler, Ph.D. (North Carolina at Chapel Hill, 1973).

Research Associates: Miriam Clifford, Ph.D. (Duke, 1970); Thomas Haney, M.S.P.H. (North Carolina at Chapel Hill, 1978); Kathryn Gustafson, Ph.D. (Ohio, 1988); Judy K. Plemons, Ph.D. (Pennsylvania State, 1981); Suzanne Ross, Ph.D. (Miami, 1986); David A. Williams, Ph.D. (Ohio State, 1988).

Visiting Research Associate: Mary E. Nivison, B.S. (Michigan State, 1970).

## DIVISION OF OUTPATIENT SERVICES

Associate Professor: Jonathan Davidson, M.D. (Univ. College, London, 1976), *Head of Division*.

Professors: H. Keith H. Brodie, M.D. (Columbia, 1965); David S. Werman, M.D. (Lausanne, Switzerland, 1952).

Associate Professor: David M. Hawkins, M.D. (Duke, 1966).

Assistant Consulting Professors: William Anixter, M.D. (George Washington, 1977); Jack W. Bonner III, M.D. (Southwestern, 1965); Stephen Buie, M.D. (North Carolina at Chapel Hill, 1981); George W. Doss, M.D. (South-



western, 1954); Martin G. Groder, M.D. (Columbia, 1964); Linda H. Jackson, M.D. (North Carolina at Chapel Hill, 1965); Eric Peterson, M.D. (Duke, 1971); Robert D. Phillips, M.D. (Pennsylvania, 1952); Leo Potts, M.D. (Univ. of Adelaide, 1954); Richard Selman, M.D. (Emory, 1972); Cynia B. Shimm, M.D. (Yale, 1950); Glenn N. Siegel, M.D. (Northwestern, 1975); Robert M. Wells, M.D. (Tulane, 1954).

Associate: Stephen Ford, M.D. (East Tennessee State, 1980).

Consulting Associates: Peter F. Adland, M.D. (Georgetown, 1975); Diana Jo Antonacci, M.D. (Southern Illinois, 1982); Ernest R. Braasch, M.D. (State Univ. of New York, 1970); Edward K. Bridges, M.D. (North Carolina at Chapel Hill, 1978); Lawrence Champion, M.D. (Wisconsin, 1973); Joanna Gaworowski, M.D. (Medical Academy, Warsaw, 1967); Lida M. Jeck, M.D. (Duke, 1977); Duncan McEwen, M.D. (Tulane, 1982); Bruce Neeley, M.D. (Med. Coll. of South Carolina, 1975); Mindy Oshrain, M.D. (Duke, 1983); Peter Z. Perault, M.D. (Vermont, 1977); Roger Perilstein, M.D. (Temple, 1982); Ernest Raba, M.D. (Texas, 1972); Erin G. Russell, M.D. (Louisville, 1980); Nathan R. Strahl, M.D. (North Carolina at Chapel Hill, 1983); David M. Susco, M.D. (Pennsylvania State, 1983); Ronald L. Vereen, M.D. (Duke, 1981); Patricia Webster, M.S.N. (North Carolina at Chapel Hill, 1976); James R. Weiss, M.D. (Louisiana, 1973); James S. Wells, Jr., M.D. (North Carolina at Chapel Hill, 1977); Floyd C. Wiseman, M.D. (Texas at Houston, 1982).

Instructors: Elizabeth Nicholes, P.A.C. (Duke, 1979); Thomas Stephenson, M.D. (Michigan, 1972).

## DIVISION OF PSYCHIATRIC SOCIAL WORK

Assistant Professor: Joanne Turnbull, Ph.D. (Michigan, 1986), *Head of Division*.

Assistant Professor: Lisa Gwyther, M.S.W. (Case Western Reserve, 1969).

Clinical Assistant Professors: Carolyn H. Cole, M.S.W. (Wisconsin, 1972); Bernard Ferencik, Ph.D. (Akron, 1981); Brenda Jo Kurz, Ph.D. (North Carolina at Chapel Hill, 1986); William S. Meyer, M.S.W. (Illinois, 1977).

Associates: Judith A. Carroll, M.S.S.W. (Wisconsin, 1986); Maxine R. Flowers, M.S.W. (Columbia, 1964); Stephen Hawthorne, M.S.W. (California, 1974); Edward Lueth, M.S.W. (North Carolina at Chapel Hill, 1982); Diane E. Meglin, M.S.W. (Yeshiva, 1982); Jane Clark Moorman, M.S.W. (Tulane, 1971).

Clinical Associates: Bess Autry, M.S.W. (North Carolina at Chapel Hill, 1976); Edna M. Ballard, M.S.W. (North Carolina at Chapel Hill, 1980); Mary Jane Burns, M.S.W. (North Carolina at Chapel Hill, 1974); Muki Fairchild, M.S.W. (North Carolina at Chapel Hill, 1976); Sharon L. Greene, M.S.W. (Kentucky, 1976); M. Jane Howard, M.S.S.W. (Texas, 1979); Gael McCarthy, M.S.W. (North Carolina at Chapel Hill, 1985); S. Kay Patterson, M.S.W. (Ohio State, 1967); Andrew Silberman, M.S.W. (North Carolina at Chapel Hill, 1982); Eleanor T. Williams, M.S.W. (North Carolina at Chapel Hill, 1977); Margaret Wilner, M.S.W. (Columbia, 1977).

Consulting Associates: Mary Ann Black, M.S.W. (North Carolina at Chapel Hill, 1970); Terri W. Featherston, M.S.W. (Virginia Commonwealth, 1983); Renate P. Guttman, M.S.W. (North Carolina at Chapel Hill, 1969); Nyra Hill, M.S.W. (North Carolina at Chapel Hill, 1978); Mary Gail Holton, M.S.W. (Richmond Professional Inst., 1966); Betty B. Parham, M.S.W. (Smith, 1971); Anne K. Parrish, M.S.W. (North Carolina at Chapel Hill, 1963); Joye S. Pursell, M.S.W. (North Carolina at Chapel Hill, 1978); Carolyn Thornton, M.S.W. (North Carolina at Chapel Hill, 1968).

Instructors: Camille S. Arrington, M.S.W. (North Carolina at Chapel Hill, 1982); Christine Bell, M.S.W. (North Carolina at Chapel Hill, 1977); Linda L. Campbell, M.S.W. (North Carolina at Chapel Hill, 1981); Betye B. Carey, M.S.W. (North Carolina at Chapel Hill, 1982); Mary Sue Cherney, M.S.W. (North Carolina at Chapel Hill, 1983); Paul V. Epanchin, M.S.W. (North Carolina at Chapel Hill, 1988); Barbara A. Gau, M.S.W. (North Carolina at Chapel Hill, 1986); Eugene B. Glenn, Jr., M.S.W. (North Carolina at Chapel Hill, 1981); Lisa Gonzenbach, M.S.W. (North Carolina at Chapel Hill, 1987); Judith Herman, M.S.W. (North Carolina at Chapel Hill, 1983); Debbie Hill, M.S.W. (North Carolina at Chapel Hill, 1987); Robert Laws, M.S.W. (North Carolina at Chapel Hill, 1978); Beatrice C. Laney, M.S.W. (North Carolina at Chapel Hill, 1983); Mary Pat Lennon, M.S.W. (Catholic Univ., 1978); Lois Perlman Minis, M.S.W. (North Carolina at Chapel Hill, 1981); Ylana N. Miller, Ph.D. (California at Berkeley, 1975); Phyllis A. Polhamus, M.S.W. (Virginia Commonwealth, 1987); Caryl A. Polk, M.S.W. (North Carolina at Chapel Hill, 1983); Debra-Jean Potter, M.S.W. (North Carolina at Chapel Hill, 1987); Susan Sweney, M.S.W. (North Carolina at Chapel Hill, 1986); Mickey Tullar, M.S.W. (North Carolina at Chapel Hill, 1982); Ann S. Willoughby, M.S.W. (North Carolina at Chapel Hill, 1988); Eleanor A. Wilson, M.S.W. (Utah, 1981).

## DIVISION OF SOCIAL AND COMMUNITY PSYCHIATRY

Assistant Professor: Marvin S. Swartz, M.D. (Tufts, 1980), *Head of Division*.

Professors: Kurt Back, Ph.D. (Massachusetts Inst. of Tech., 1949); James H. Carter, M.D. (Howard, 1966); Linda K. George, Ph.D. (Duke, 1975); George L. Maddox, Ph.D. (Michigan, 1956); Erdman B. Palmore, Ph.D. (Columbia, 1959).

Associate Professor: Jacquelyne J. Jackson, Ph.D. (Ohio State, 1960).

Associate Consulting Professor: Nicholas Stratas, M.D. (Toronto, 1957).

Assistant Professors: Deborah T. Gold, Ph.D. (Northwestern, 1986); David B. Larson, M.D. (Temple, 1973); Daniel L. Tweed, Ph.D. (Iowa State, 1975).

Assistant Consulting Professor: James O. Hoover, M.D. (Iowa, 1966).

Adjunct Assistant Professor: Keith G. Meador, M.D. (Louisville, 1982).

Assistant Medical Research Professors: Dana C. Hughes, Ph.D. (Kansas State, 1979); Lawrence Landerman, Ph.D. (Duke, 1978).

Associate: Thomas E. Sibert, M.D. (Baylor, 1983).

Clinical Associates: James N. Finch, M.D. (South Florida, 1981); Mary Lou Melville, M.D. (Texas, 1971).

Consulting Associates: Gabrielle Batzer M.D. (Georgetown, 1981); Jeffrey Brantley, M.D. (North Carolina at Chapel Hill, 1977); Eugene A. Douglas, M.D. (North Carolina at Chapel Hill, 1959); Stephen B. Fleishman, M.D. (Maryland, 1974); Mark D. Glenn, M.D. (North Carolina at Chapel Hill, 1979); Sally Johnson, M.D. (Jefferson, 1976); Gordon Lavin, M.D. (Case Western Reserve, 1978).

Instructors: Peter H. Holden, M.D. (Univ. of Sheffield, 1948); James A. Smith III, M.D. (Howard, 1976).

Lecturers: Robert Rollins, M.D. (Duke, 1956); N. P. Zarzar, M.D. (American Univ., Beirut, 1956).

Emeriti: Marie Baldwin, M.D.; Marianne Breslin, M.D.; Ewald W. Busse, M.D.; Hallie Coppedge, M.S.W.; Bingham Dai, Ph.D.; John A. Fowler, M.D.; Ila H. Gehman, Ed.D.; Robert L. Green, M.D.; Dorothy K. Heyman, M.S.W.; Mary M. Huse, Ph.D.; Maurine B. LaBarre, M.S.W.; Charles E. Llewellyn, M.D.; Joseph B. Parker, M.D.; John M. Rhoads, M.D.; Adriaan Verwoerd, M.D.; Martha L. Wertz, M.S.W.; William P. Wilson, M.D.

## Required Courses

**PSC-200.** Consists of sixty hours devoted to human behavioral sciences basic to medicine: behavioral neurobiology, individual psychology, and the social sciences. The class is divided into small groups of ten to twelve students, each group led by two senior faculty members, with contrasting knowledge, and a psychiatric resident. Group activity consists of discussion of assigned readings in all of the areas listed above as well as interviews of psychiatric and nonpsychiatric patients intended to demonstrate behavioral science principles as well as provide opportunity for development of interviewing skills.

**PSC-205.** Required during the second year is an eight-week clerkship in clinical psychiatry. The student assumes limited responsibility, under supervision, for diagnosis and treatment of patients on the psychiatric wards, psychiatric outpatient clinic, and psychosomatic consultation services on nonpsychiatric wards of the hospital. Supervision is directed toward the application of concepts of diagnosis, psychopathological formulation, and therapy. These concepts are taken from descriptive, biological, psychoanalytic, and psychosocial contributions to current psychiatric thought. Supervision is also provided to develop interpersonal techniques of sensitive observation and therapeutic use of self. Emphasis is placed upon concepts and techniques applicable to all patients as well as psychiatric patients. Didactic instruction includes seminars on symptomatic, characterological, and psychophysiological neurotic conditions; the major psychoses; psychiatric problems of childhood; adolescence and late life; drug and somatic therapies; the psychotherapies; and introductory electroencephalography. In addition to rounds and case conferences, students are encouraged to observe psychotherapy and to participate in supervised psychological treatment whenever appropriate situations can be provided.

## Electives

**PSC-210(B). Philosophy of Science and Behavioral Sciences.** A reading-discussion seminar reviewing the traditional (logical empiricist) view of scientific knowledge and method followed by consideration of recent developments of thought suggesting additions and modifications to that view. Implications for the behavioral sciences in medicine are emphasized. Weight: 1. *Hine*

**PSC-213(B). Human Development I: Birth to Adolescence.** This course is a survey of the psychological development of the child from birth through adolescence. The first segment of the course is designed to provide the student with an awareness of some of the major theoretical orientations to child development including the psychoanalytic, Piagetian, and social learning positions. This is followed by a systematic study of the normal sequences of child development, focusing in particular on some of the major events in the cognitive, social, and emotional life of the child. The course is run in seminar fashion utilizing numerous theoretical and research papers as well as observation of children

in naturalistic settings to facilitate class discussion. Students will also be required to familiarize themselves with research in child development by doing a review of the literature in a defined area. Weight: 2. *Curry*

**PSC-214(B). Human Development II: The Later Years of Life.** This course will cover the basic research material in the psychology of adult development and aging with an emphasis on such topics as personality development, intellectual development, learning and memory, family and social processes, health and behavior, and research methods. Additionally, the use of research and knowledge base in geriatric medicine and in geriatric psychiatry, with a focus on understanding normal development in mid-life and old age, will be discussed. The course will be taught as a seminar. There will be assigned readings on reserve at the library and a recommended text. Students will be required to review the literature in an area of their choice, prepare an annotated bibliography, and have an oral examination on the topic. Prerequisites: PSC 213 suggested. Weight: 2. *Siegler*

**PSC-215(B). Comparative Personality Theory.** An examination of models of human functioning; topics will include examples from psychoanalytic, interpersonal, humanistic, behavioristic, and existential approaches with the goal of recognizing personality issues that may arise within the framework of the doctor-patient relationship. A paper covering empirical approaches is required. Weight: 1. *Crovitz*

**PSC-217(B). Interpersonal Relationships.** Theoretical and empirical models of interpersonal relationships will be examined, with emphasis upon the changing, developmental stages of interpersonal relationships. Research in marital and family systems and in physician-patient dyads will be critically discussed. Weight: 1. *Lochman*

**PSC-220(B). Sleep Disorders.** Students will initially be given a reading list and introduced to the ambulatory sleep laboratory and its operations. Thereafter they will meet with the staff on four-day-a-week schedule to learn how sleep is scored in the laboratory and on a semi-weekly basis to discuss their reading. After about two weeks they will begin to formulate a research project to be carried out in the lab in conjunction with the staff. A written review of the reading and how it frames the hypotheses to be tested will be generated by the student. From this point on further research readings will be assigned (or found by the student) to flesh out the background for the research as the project moves forward. The project will be expected to be of the quality to be formed into a manuscript and offered for publication. Data will be analyzed with the student participating fully with the staff in the statistical design and analysis. Weekly lab seminars will be used to discuss ongoing research in the lab. The student and his project will be a part of this ongoing seminar. Weight: 3. *Marsh, Erwin, and McCall*

**PSC-223(B). Neurobiological Basis of Behavior.** The course surveys neuroanatomical, neurophysiological, neurochemical, and neuropharmacological evidence of central nervous system function as it relates to normal and abnormal behavior. Clinical description, measurement of function, as well as the biological substrates of affective disorders and psychoses, will be emphasized. Scientific bases of current therapeutic procedures, especially psychopharmacological, will be examined. Course format consists of assigned readings, study questions, lectures by faculty, and other active researchers. Mid-term and final examinations are given. Each student is expected to critique a circumscribed area of research. Additionally, students will have an opportunity to become acquainted with and to participate in ongoing research. Weight: 4. *Ellinwood and staff*

**PSC-238(B). Psychophysiology.** The seminar covers the major areas in psychophysiology—the correlation of body responses with states of mind. Major emphasis is given to use of EEG and evoked potentials in assessing cognitive attention and arousal

functioning. Skin tension (especially in facial musculature) is examined in relation to emotion and mood. The study of sleep and its disorders is carried out by EEG, muscle tension and eye movements. Experience and demonstration in the laboratory supplement the seminar discussion. Two exams, term paper, and class participation determine grade. Weight 3. *Marsh*

**PSC-293(B). Behavioral Medicine.** The theory and application of behavior therapy and behavior modification as applied to the treatment of disease will be discussed. The course will focus on the direct behavioral manipulation of pathophysiology, using biofeedback, relaxation and other self-control techniques. Attention will be focused on the treatment of headaches, cardiovascular disorders, neuromuscular disorders, chronic pain, and stress-related gastrointestinal disease. Students will be expected to spend at least three hours per week seeing patients and rounding with staff. Participation by arrangement with instructor. Weight: 2. *Surwit, Keefe, and Blumenthal*

**PSC-297(B). Ethnic and Minority Health Patterns and Problems.** Descriptive and analytical focus on the literature about ethnic and minority health patterns in the United States, the issues inherent therein, and the implications thereof for the delivery of medical services. Weight 4. *Jackson*

**PSC-299(B). Preceptorship in Neurobiology and/or Behavioral Science.** Opportunity for the student to work closely with a member of the faculty in an area of mutual interest, with emphasis upon research. (See biobehavioral study program for partial list of interest areas; more complete descriptions available.) Weight: 1-18. *Ellinwood and staff*

**PSC-303(B). Developmental Disabilities.** The course will focus on several disorders illustrative of the field, such as retardation, autism and learning disabilities as well as broader issues relating to evolving approaches at diagnosis, remediation, and prevention. The objectives are to present what is known about the etiology and course of developmental disabilities as well as an appreciation of management issues. Weight: 2. *Thompson*

**PSC-305(B). Social and Cultural Aspects of Illness.** Seminar on medical-social roles in community and hospital. Topics include physician-patient relationship; epidemiology of illness and health services in terms of ecology, social stratification, race, deviance, and life cycle. Proposals for improving health services are examined. Students prepare and present to the seminar a term paper on a topic of their choice. Students wishing further work in one particular topic such as black sub-culture or gerontology, should take PSC-299(B) specifying particular interest. May be taken in conjunction with PSC-251. Weight: 3. *Palmore and Maddox*

**PSC-227 (C). Behavioral Aspects of Pediatrics.** This course will offer students the opportunity to study, as a part of an interdisciplinary team, in the diagnosis and treatment of children and adolescents (ages two to twenty-one) with a variety of psychiatric problems. This may include anorexia nervosa, bulimia, enuresis, encopresis, school phobia, psychosomatic disorders, tourette syndrome, suicidal and acting-out adolescents, chronically or terminally ill children and child abuse and neglect cases. Trainees will study principles of psychological development, psychoanalytic and family systems theory. The student will participate in child, parent, and family interviews as an integral part of the treatment team. There will be an opportunity to be involved in the inpatient and outpatient treatment process on pediatric and adolescent psychiatric wards. (See also PED-227.) Weight: 2-6. *J. D. Jones and Waugh*

**PSC-234 (C). Clinical Psychopharmacology.** Experiences at John Umstead Hospital in clinical/research in one or more areas of psychopharmacology including clinical use of drugs, human experimental psychopharmacology, evaluation of drugs based on FDA guidelines, biometric approach to ratings of psychopathology, statistical models, use of computers in psychiatry and psychometric testing (mornings only). Weight: 4. *Wilson*

**PSC-240 (C). Inpatient Psychiatry.** This course is an intensive clinical experience in the diagnosis and treatment of severe and incapacitating psychiatric disorders. The student will be given more clinical responsibility than the comparable second year inpatient rotation. Patient care responsibilities will include management of ward milieu. Treatment approaches emphasizing psychotropic medication, individual, family and group psychotherapy will be part of the clinical experience. Participation at selected patient care conferences and didactic lectures is expected. The rotation is available at Duke and the Veterans Administration Medical Center. The rotation at the Veterans Administration Medical Center will include admission decision-making. At Duke, specialty program experience is available. This experience can be structured to include a survey of the variety of residential treatment available in this area. If desired a student may arrange for a special reading tutorial in related topics (e.g. schizophrenia). Weight: 8-6-3. *Cavenar and Swartz*

**PSC-241 (C). Clinical Management of Psychiatric Inpatients.** Students will develop their skills and knowledge in caring for hospitalized psychiatric patients by performing a subinternship role with close faculty supervision. They will learn treatment of major psychiatric illness by taking primary responsibilities for approximately eight patients/month. Weight: 4-9. *Rayasam*

**PSC-243 (C). Principles and Practice of Outpatient Psychiatry.** Training and experience in recognizing and treating emotional disorders in outpatients. Supervised experience (primarily observational) with patients having emotional problems commonly seen in medical practice. This training will include theory and techniques of brief psychotherapy, medication management, supportive psychotherapy, and utilization of community resources, both at Duke Hospital and neighboring agencies. Although it may be possible to do some clinical work in working with patients (i.e. interviewing, evaluations, and possibly observing other people do therapy), the primary education will be in attending A.R.T.s, miniteam, medication clinic and various other seminars. Because of the nature of outpatient work, it is suggested that the student take the longer (eight weeks) rather than the shorter rotation. Please contact Dr. Ford at least eight weeks in advance to arrange this rotation. Weight: 3-8. *Ford, and OPC staff*

**PSC-245 (C). Psychosomatic Medicine.** The consultation-liaison services at the Duke Medical Center and the VA Medical Center offer clinical clerkships in the management of psychological problems of medical patients, and somatic symptoms in psychiatric patients. The student does psychiatric consultations in the various specialized medical and surgical services under the supervision of residents and senior staff. Emphasis is placed on training the student in advanced interviewing techniques, and in assessment and intervention for psychological reactions or depression due to medical illness. In the past, students have chosen among cardiac disease, oncology and death and dying, pain hemodialysis, intensive care, and gynecologic problems. The site selected and the specific specialty area chosen depends on the availability and location of psychiatric consultants with those interests. The rotation is flexible, and we will try to match student interests with the interests of available consultants. Students need to check with Dr. Volow (VAMC) or Dr. Varia (Duke) on the current availability of specialty areas. Weight: 4 or 8. *Volow and Varia*

**PSC-251 (C). Community Psychiatry.** The student will develop a course based on selections from a variety of community and special population settings; this includes the Durham Mental Health Center and its component units (children's services, alcohol and drug abuse and dependency treatment programs, programs for the care and training of the mentally retarded and adult psychiatry services); the Federal Corrections Center at Butner, and the psychiatric service at the Lincoln Community Health Center. Students interested in this elective must contact Dr. Swartz or Dr. James Carter at least four weeks prior to the term selected for this course in order to develop a program tailored to the student's interests. Weight: 4-8. *Swartz, Carter, and staff of Division of Social and Community Psychiatry*

**PSC-253 (C). Group Psychotherapy.** Observation of an on-going outpatient group psychotherapy program. Prerequisites: Student must contact Dr. Hawkins' office at least six to eight weeks prior to course to determine if a group for observation is available. Weight: 1. *Hawkins and staff*

**PSC-255 (C). Marital and Family Factors in Medical Practice.** The student will develop knowledge in the basic theoretical and clinical concepts of the marital and family relationship and learn to recognize, evaluate, and treat patients who present with marital and family problems. The orientation will be for the physician delivering primary care, and an emphasis will be placed on the relationship between marital dynamics and compliance with the treatment regimens and the course of different illnesses. Didactic and case material will be presented in seminar format, and students will be expected to present case material for discussion. Weight: 1. *Turnbull*

**PSC-260 (C). Neuropsychiatry.** Neuropsychiatry is the study of how alterations in brain structure and function produce disturbances in human behavior. In this two to four credit course, the student will become familiar with the major neuropsychiatric syndromes: dementia, delirium, organic mental syndromes such as organic personality syndrome (e.g. frontal lobe syndrome) and organic affective syndrome (e.g., post-stroke depression). The student will develop an understanding of diagnosis and treatment based upon a multidisciplinary clinical approach, including specialized clinical neuropsychiatric exams. The patient population will be drawn from the Duke University Medical Center and Durham Veterans Administration Medical Center psychiatry, neurology, and neurosurgery services. Depending on the site, the student may also be provided the opportunity to become familiar with specialized neuropsychiatric approaches, including psychometric testing, and including neural imaging techniques, such as EEG and computerized EEG, CT scan, MRI, cerebral blood flow, and PET scan. Depending on site, some customization of the elective can be arranged in advance. Weight: 2 to 4. *Volow*

**PSC-261 (C). Clinical Psychology.** The goal of this course is to train the student in determining the relevance of psychological factors in the management and treatment of common physical problems. The course will introduce the student to psychological assessment techniques through observation and practice in administration and interpretation. Students will gain familiarity with the utility of psychological assessment in medical practice, especially in formulating plans for the care of chronic conditions (e.g., dementias, back pain, headache, diabetes, hypertension). Weight: 1. *E. Crovitz*

**PSC-263 (C). Treatment of Anorexia Nervosa and Bulimia.** The purpose of this course is to train students in recognizing and treating anorexia nervosa and bulimia. The experience is offered in a multimodel treatment setting and includes: participation in inpatient team meetings, individual psychotherapy sessions with inpatients, observation of family sessions, and participation in outpatient support groups. Weight: 4-8. *Rockwell and Ellinwood*

**PSC-265 (C). Inpatient Adolescent and Family Psychiatry.** Adolescent and family psychopathology are emphasized in the full-time clinical rotation at the Children's Psychiatric Institute, John Umstead Hospital, Butner, NC. The experience offered is an intensive and rich one with opportunities to observe and treat patients and their families. Group and individual supervision, collaboration with milieu team members and diagnostic and treatment conferences are heavily emphasized. Prerequisites: Personal application and interview by instructors. Career interest in psychiatry. Weight: 8. *Guajardo*

**PSC-266 (C). Clinical Management of Adolescent Inpatients.** This course consists of well supervised, clinical care for adolescents with various psychopathologic disorders. Each student will be an integral member of the clinical team, with opportunities for participating in individual and group psychotherapy as well as family therapy and parent counseling. A senior staff psychiatrist will be assigned as a preceptor. Weight: 4-8. *Anderson and Curry*

**PSC-267 (C). Clinical Child Psychiatry Outpatient Programs.** Under supervision, the student will perform diagnostic evaluations and short-term treatment with parents, children, and families, and may participate in one or more of the following specialty programs: (a) therapeutic kindergarten and elementary school; (b) juvenile court clinic; and (c) conduct disorder clinic. Child development and the psychobiological and psychodynamic perspectives of childhood psychopathology will be emphasized. Weight: 3-6. *Keith, Lochman, and Flowers*

**PSC-275 (C). Assessment of Sleep Disorders and Treatment.** The student will participate in our weekly sleep clinic which assesses three to four patients with sleep problems every Tuesday morning. This is followed by a conference which allows the staff and the students to discuss the cases seen in follow-up. This conference is also used to discuss general problems in sleep disorders, quality control of our sleep evaluations and recent research findings of relevance to the laboratory. The students will also come to the laboratory one morning per week to participate in the scoring of overnight polysomnographic recordings of patients receiving evaluation. They will be expected to learn the scoring system and perform some evaluations with staff supervision. There are numerous records in our laboratory upon which they may also practice to sharpen their skill. They will be free to participate in the several research questions being pursued in the laboratory by the staff. An introduction to the lab will provide the student an overview of equipment, lab operations, and the ongoing research questions. A reading list will also be provided to allow the student to acquire background on the cases seen in the laboratory. Weight: 3. *Erwin, Marsh, and McCall*

**PSC-280 (C). Modern Psychotherapy I: Intensive Clinical Introduction.** In this full-time (or near full-time) introduction the student participates actively in assessment of outpatients for psychotherapy, short-term psychotherapy of inpatients, ongoing psychotherapy groups and family therapy sessions. In addition he/she attends seminars on the various psychotherapeutic approaches: psychoanalytically oriented, cognitive, behavioral, interpersonal, systemic, etc. Readings will be assigned and discussed. The student may pursue an area of special interest in greater depth with a selected preceptor. Weight: 4. *Kudler, E. Thompson, Gianturco, Hawkins, Hawthorne, Hine, Werman, and staff*

**PSC-281 (C). Modern Psychotherapy II: Extended Psychotherapy Experience.** The student will: (1) undertake the individual psychotherapy of a patient, with weekly supervisory review by a faculty member of the therapy sessions; or, (2) participate as cotherapist with a member of the faculty in the sessions of a therapeutic group or a family therapy, with follow-up discussion of each session. This course may be elected for the twelve weeks of the fall term following modern psychotherapy, for twenty weeks (to the middle of the spring term), or, optimally, for the entire remainder of the fourth year. Two to four hours per week will be required. Some additional reading will be included. Prerequisite: Modern psychotherapy I. Weight: 1 per 12 weeks. *Kudler, E. Thompson, Gianturco, Hawkins, Hawthorne, Hine, Werman, and staff*

**PSC-333 (C). Family Psychiatry and the Therapeutic Community: Durham County General Hospital.** Students will evaluate and treat patients within a family-oriented therapeutic community. The principles and practice of psychiatric diagnosis and treatment in a community setting will be stressed. Advanced students will participate in family therapy, group therapy, and the total management of the patient. Weight: 4-8. *Thompson and Winton*

**PSC-335 (C). Research Preceptorship in Clinical Psychiatry.** This course allows the student to work on a research project in clinical psychiatry with selected members of the psychiatric staff. Weight: 3-8. *Nemeroff, clinical staff by arrangement*

**PSC-336 (C). Biology of Depression.** This elective will focus on the diagnostic, nosologic, treatment, and research aspects of depression in adult and late life. The student

will be delegated clinical responsibility, and he/she will be closely involved with the treatment team of the affective disorders specialty clinic. Participation at team meetings and diagnostic conferences is expected. Weight: 4-8. *Nemeroff, Krishnan, Blazer, and Carroll*

**PSC-337 (C). Geriatric Psychiatry.** The medical and clinical aspects of geriatric psychiatry with emphasis on diagnosis and management of geriatric patients in a variety of treatment facilities. Course includes attendance at scheduled conferences and supervised review of geriatric literature. Course may be taken in conjunction with PSC-214(B). Weight: 3-8. *Breitner, Blazer, Whanger, Wang, and staff*

**PSC-343 (C). Clinical Aspects of Alcohol and Drug Abuse.** This course offers a part-time or full-time experience at the Duke Alcoholism and Addiction Program in the diagnosis and treatment for patients who abuse alcohol and/or drugs. The interrelations of substance abuse with personality disorder and major psychiatric disorder is emphasized. Weight: 4-8. *Mathew and clinical staff*

**PSC-353 (C). Correctional/Forensic Psychiatry— Adult and Adolescent.** Part-time or full-time experience in a correctional setting is offered. Diagnosis and treatment of adult and adolescent offenders with a variety of medical illnesses and behavioral disturbances are recognized. Elements of forensic psychiatry are stressed where appropriate. Supervision is provided by Duke faculty and the Central Prison Hospital and mental health staff. Opportunities for participation in a wide range of original and continuing research are available. Weight: 2-9. *Carter (Duke), Smith (Central Prison), and Rollins (Dorothea Dix)*

**PSC-357 (C). Behavioral Medicine: Behavioral Treatment of Disease.** This course is designed to acquaint the student with behavioral treatment approaches which have proven useful in management of many medical problems. Students will be involved in evaluation and treatment of patients with physical and psychiatric disorders. Students will be taught how to conduct a behavioral assessment of medical problems and will be familiarized with various treatment strategies, including relaxation techniques, biofeedback techniques, and operant conditioning and contingency management procedures. Prerequisite: Permission of instructor. Weight: 1. *Surwit, Keefe, and Blumenthal*

## Radiology

Professor: Carl E. Ravin, M.D. (Cornell, 1968), *Chairman.*

### DIVISION OF IMAGING

Professor: N. Reed Dunnick, M.D. (Cornell, 1969), *Director.*

Professors: James D. Bowie, M.D. (Oklahoma, 1967); James T. T. Chen, M.D. (Natl. Defense Med. Ctr., Taiwan, 1950); R. Edward Coleman, M.D. (Washington Univ., 1968); Eric L. Effmann, M.D. (Indiana, 1967); Herman Grossman, M.D. (Columbia, 1953); E. Ralph Heinz, M.D. (Pennsylvania, 1955); G. Allan Johnson, Ph.D. (Duke, 1974); Saadoon Kadir, M.D. (University of Freiburg, West Germany, 1970); James B. Duke Professor Charles E. Putman, M.D. (Texas at Galveston, 1967); Reed P. Rice, M.D. (Indiana, 1955); H. Dirk Sostman, M.D. (Yale, 1976); Leonard D. Spicer, Ph.D. (Yale, 1968).

Associate Professors: William H. Briner, B.S. (Temple, 1954); Barbara Carroll, M.D. (Stanford, 1972); William Currie, Ph.D. (North Carolina at Chapel Hill, 1964); C. Craig Harris, M.S. (Tennessee, 1951); Ronald Jaszczak, Ph.D. (Florida, 1968); Salutarario Martinez, M.D. (Havana Univ., 1961); Daniel C. Sullivan, M.D. (Vermont, 1970); Robert H. Wilkinson, Jr., M.D. (Washington Univ. 1958); Michael R. Zalutsky, Ph.D. (Washington Univ., 1974).

Assistant Professors: Mark E. Baker, M.D. (Loyola, 1978); Erol M. Beytas, M.D. (Vanderbilt, 1981); Russell A. Blinder, M.D. (Pennsylvania, 1979); Hal Cecil Charles, Ph.D. (New Orleans, 1981); Caroline Chiles, M.D. (Duke, 1979); Richard H. Cohan, M.D. (New York Univ., 1979); Andrew J. Collins, M.D. (New Jersey, 1983); Cirrelda Cooper, M.D. (Northwestern, 1980); Kate A. Feinstein, M.D. (Illinois, 1981); Carey Floyd, Jr., Ph.D. (Duke, 1981); William Foster, Jr., M.D. (Duke, 1973); Laurence Hedlund, Ph.D. (Pittsburgh, 1968); Barbara Hertzberg, M.D. (Duke, 1980); James R. MacFall, Ph.D. (Maryland, 1976); William Meisler, M.D. (Columbia, 1978); G. Andrew Meyer, M.D. (Case Western, 1982); Glenn E. Newman, M.D. (Duke, 1973); Faysal Ali Saksouk, M.D. (American Univ., Beirut, Lebanon, 1975); Dale R. Shaw, M.D. (Duke, 1973); Charles Spritzer, M.D. (Pittsburgh, 1981); Robert Vandemark, M.D. (Upstate Med. Center, 1980); Margaret Eileen Williford, M.D. (Duke, 1976).

Associates: Stephen C. Anderson, M.D. (Maryland, 1984); Frank Berkowitz, M.D. (New York Med. Coll., 1983); Orest Boyko, M.D. (Indiana, 1982); Harold Chotas, Ph.D. (Vanderbilt, 1975); Marc Alan Finkel, M.D. (Albert



Einstein, 1983); Michael Hanson, M.D. (West Virginia, 1974); William Paul Jones, M.D. (Tulane, 1984); Richard A. Leder, M.D. (Boston, 1984); Linda Gray Leithe, M.D. (Ohio State, 1982); David Joel Rippe, M.D. (Indiana, 1983); Hal Safrit, M.D. (North Carolina at Chapel Hill, 1982); Harlan Lawrence Vingan, M.D. (New York, 1983); Stanley M. Wehn, M.D. (California at San Diego, 1979).

Research Associates: James Dobbins III, Ph.D. (Wisconsin, 1985); Dean Keuthe, Ph.D. (Duke, 1986); James Lee, Ph.D. (Duke, 1986); Acharan Narula, Ph.D. (Univ. of Rajasthan, India, 1971); John Need, Ph.D. (California at Berkeley, 1954); Siya Ram, Ph.D. (Cent Drug Res. Inst., Lucknow, 1979); Anthony Ribeiro, Ph.D. (California at San Diego, 1975); David Wilkes, M.D. (Duke, 1987); Jing-Yuan Zheng, M.D. (Second Medical College, Shanghai, China, 1954).

## DIVISION OF RADIATION ONCOLOGY

Professor: Leonard Prosnitz, M.D. (State Univ. of New York, 1961), *Director*.

Professor: Gustavo S. Montana, M.D. (Bogota, Columbia, 1960).

Associate Professors: Mark Dewhirst, Ph.D., D.V.M. (Colorado, 1979); Edward Halperin, M.D. (Yale, 1979); Randy Jirtle, Ph.D. (Wisconsin, 1975); James Oleson, M.D. (Arizona, 1976); Marc Sontag, Ph.D. (Univ. of Toronto, 1969).

Assistant Professors: Mitchell Anscher, M.D. (Virginia, 1981); David Brizel, M.D. (Northwestern, 1983); Mark J. Engler Ph.D. (Mass. Inst. of Tech., 1969); Kenneth Leopold, M.D. (Pennsylvania, 1982); Thaddeus Samulski, Ph.D. (New York at Buffalo, 1975).

Associate: Conrad Knight.

Research Associates: James Blackburn, Sharon Meyer, Ph.D. (Cornell, 1984).

Emeriti: George J. Baylin, M.D.; Fearghus O'Foghluha, Ph.D.

## Required Course

**RAD-200.** The basic course in radiology for all medical students is combined with physical diagnosis and laboratory diagnosis into IND-200. The course is a concentrated lecture series with correlating demonstration laboratories designed to provide a broad introductory exposure to the entire field of diagnostic radiology.

## Electives

**RAD-221(B). General Physics of Radiology.** Basic physics underlying radiation diagnosis and therapy, emphasizing production and measurement of ionizing radiation and radiation interactions in tissue; physical rationale of radiation methods in clinical practice; survey of recent developments in radiological equipment; radiation hazards. Weight: 2. *Johnson*

**RAD-223(B). Radioisotope Methods and Techniques in Biomedical Research.** Prerequisites: None required, Rad 221 (B) suggested. Weight: 2. *Johnson, Currie, and Knight*

**RAD-227(B). General Radiobiology.** Basic fundamentals essential to an understanding of biological effects of ionizing radiation at the molecular, cellular and organismal level. The course will cover the following topics: radiation physics, radiation chemistry, DNA repair, genetic effects, radiation carcinogenesis, radiation effects on the developing embryo and fetus, general radiation syndromes, oxygen effect, radiation protectors and sensitizers, tumor physiology and hyperthermia. Weight: 2. *Jirtle*

**RAD-231(B). Introduction to Radiological Sciences.** Basic principles underlying radiography, contrast materials, ultrasound, nuclear medicine, computerized tomography, and nuclear magnetic resonance will be presented. A thorough review of radiographic anatomy will precede an organ-system approach to radiologic-pathologic correlation. Lectures will be supplemented with demonstrations. Weight: 3. *Effmann and Blinder*

**RAD-235(B). Magnetic Resonance and Fluid Mechanics.** Magnetic Resonance and Fluid Mechanics is a graduate level seminar about how flowing liquids are imaged with nuclear magnetic resonance (NMR). Topics include basic fluid mechanics, basic theory of NMR imaging, and problems associated with conducting experimental science that combines these two fields. Dr. Kuethe will lead up to nine of the two-hour weekly dis-

cussions. For the remaining sessions, other participants will be required to lead discussions on published papers or topics of their choice. Weight: 2. *Kueth*

**RAD-250(B). Research in Radiology.** An individually arranged experience in which the student identifies with and participates in an established research program of a faculty member. Program should be arranged with DPA and proposed faculty member well in advance of starting date. Weight: 1-18. *Effmann, Johnson, and Sostman*

**RAD-210 (C). Pediatric Radiology.** A specialized program of instruction and participation in the wide variety of radiographic examinations in the pediatric age group. Special correlation of these examinations to the problems of specific diagnosis and patient care will be made. Students must contact Dr. Effmann prior to registration. Weight: 4-8. *Effmann and staff*

**RAD-211 (C). Clerkship in Neuroradiology.** A specialized program of detailed instruction in neuroradiology. The program includes participation in the performance and interpretation of a variety of examinations including cerebral angiography, pneumoencephalography, computerized axial tomography, nuclear magnetic resonance, myelography, cisternography, and others. Students must contact instructor prior to registration. Weight: 4-8. *Meisler and staff*

**RAD-215 (C). Clinical Radiation Oncology.** Half of all cancer patients require radiation therapy of curative or palliative intent at some point in their care. This course provides clinical experience in evaluation, treatment, and follow-up of patients treated in the Division of Radiation Oncology. The course is particularly directed to students with career goals in medical, radiation, or surgical oncology. Students must contact Dr. Prosnitz prior to registration. Weight: 4-8. *Prosnitz and staff*

**RAD-229 (C). Basic Radiology Clerkship.** This is designed to provide a broad exposure to various aspects of diagnostic radiology. The elective consists of: (a) an informal lecture course, supplemented by student presentations; (b) weekly rotations observing the performance and discussing the interpretation of radiographic procedures; (c) use of an extensive teaching file of radiographs; (d) viewing a series of audiovisual tapes. One week is spent on the chest rotation. The other rotations are at the individual students' discretion, and may include GI, GU, bone, neuro, pediatrics, vascular, nuclear medicine, body computed tomography or ultrasonography. Rotations to the VAMC radiology department may also be arranged. All registrants will meet with Dr. Cooper the morning of the first day of the course to discuss their individual rotations. Weight: 4-8. *Cooper and staff*

## Surgery

James B. Duke Professor: David C. Sabiston, Jr., M.D. (Johns Hopkins, 1947), *Chairman*.

### DIVISIONS OF GENERAL AND CARDIOTHORACIC SURGERY

Professors: William G. Aniyon, M.D. (Yale, 1949); James B. Duke Professor Dani P. Bolognesi, Ph.D. (Duke, 1964), Experimental Surgery; Howard C. Filston, M.D. (Western Reserve, 1962); Mary and Deryl Hart Professor of Surgery Robert H. Jones, M.D. (Johns Hopkins, 1965); Joseph A. Moylan, Jr., M.D. (Boston, 1964); H. Newland Oldham, Jr., M.D. (Baylor, 1961); William P. J. Peete, M.D. (Harvard, 1947); Hilliard F. Seigler, M.D. (North Carolina at Chapel Hill, 1960); Delford L. Stickel, M.D. (Duke, 1953); Walter G. Wolfe, M.D. (Temple, 1963); W. Glenn Young, Jr., M.D. (Duke, 1948).

Consulting Professors: Steward M. Scott, M.D. (Baylor, 1951); George Smith, M.D. (Univ. of St. Andrews, 1957), Ch.M. (Univ. of St. Andrews, 1959), D.Sc. (Glasgow, 1964).

Associate Professors: Onyekwere Akwari, M.D. (Southern California, 1970); Darel D. Bigner, M.D. (Duke, 1965), Ph.D. (Duke, 1971), Experimental Surgery; Ralph R. Bollinger, M.D. (Tulane, 1970), Ph.D. (Duke, 1977); Gregory S. Georgiade, M.D. (Duke, 1973); John P. Grant, M.D. (Chicago, 1969); George S. Leight, Jr., M.D. (Duke, 1972); James E. Lowe, M.D. (California at Los Angeles, 1973); Philip D. Lumb, M.B.B.S. (London University School of Medicine, 1974); William C. Meyers, M.D. (Columbia, 1975); J. Scott Rankin, M.D. (Tennessee, 1969); Alfred Sanfilippo, M.D. (Duke, 1975); Ph.D. (Duke, 1976), Experimental Surgery; Robert N. Sladen, M.B., Ch.B.

(Univ. of Cape Town Med. Coll., South Africa, 1970); Wirt W. Smith, M.D. (Texas, 1951), Experimental Surgery; John L. Weinerth, M.D. (Harvard, 1967).

Associate Medical Research Professors: Per-Otto F. Hagen, F.H.W.C. (Watt University, Edinburgh, Scotland, 1961), Experimental Surgery; Alphonse J. Langlois, Ph.D. (Duke, 1966), Experimental Surgery.

Adjunct Associate Professor: Jeffrey J. Collins, Ph.D. (Harvard, 1972), Experimental Surgery.

Assistant Professors: Steven J. Bredhoeft, M.D. (Kansas, 1974); Norbertus P. DeBruin, M.D., M.Sc. (Univ. of Gronigen, 1976); James M. Douglas, Jr., M.D. (Duke, 1978); Michael S. Gorbach, M.D. (Maryland, 1979); J. Dirk Iglehart, M.D. (Harvard, 1975); Richard L. McCann, M.D. (Cornell, 1974); Lawrence H. Muhlbaier, Ph.D. (North Carolina at Chapel Hill, 1981), Experimental Surgery; Glenn E. Newman, M.D. (Duke, 1973); Theodore N. Pappas, M.D. (Ohio State, 1981); Nicholas A. Shorter, M.D. (Johns Hopkins, 1979); Lloyd R. Smith, Ph.D. (Alabama, 1985); Peter K. Smith, M.D. (Duke, 1977); Ross M. Ungerleider, M.D. (Rush, 1976); Peter Van Trigt III, M.D. (Tulane, 1977); Walter B. Vernon, M.D. (Harvard, 1980); Frances E. Ward, Ph.D. (Brown, 1965), Experimental Surgery.

Assistant Medical Research Professors: Susan M. Blanchard, Ph.D. (Duke, 1982); Bruce Lobaugh, Ph.D. (Pennsylvania, 1981); Jeffrey R. Marks, Ph.D. (California, 1985); Thomas J. Matthews, Ph.D. (Missouri, 1971), Experimental Surgery; Gary Stuhlmiller, Ph.D. (Duke, 1976), Experimental Surgery; Kent J. Weinhold, Ph.D. (Pennsylvania, 1979), Experimental Surgery; Jon R. Wiener, Ph.D. (Virginia, 1983).

Assistant Clinical Professors: Mohammad Maroof, M.D. (Liaquat Med. Coll., Pakistan, 1964); John W. Michael, M.Ed. (Northwestern, 1982).

Assistant Consulting Professors: George M. Bilbrey, Jr., M.D. (Alabama, 1962); Albert H. Bridgman, M.D. (Louisiana, 1956); Rollins S. Burhans, Jr., M.D. (Louisville, 1963); Gordon M. Carver, M.D. (Duke, 1948); Calvin P. Claxton, M.D. (Virginia, 1961); John T. Daniel, M.D. (Howard, 1964); Thomas L. English, M.D. (Duke, 1969); Thomas J. Enright, M.D. (Buffalo, 1948); Peter A. Gentling, M.D. (Northwestern, 1964); Charles A. Keller, Jr., M.D. (Louisiana State, 1959); Robert W. Kieffer, M.D. (Johns Hopkins, 1978); Walter J. Loehr, M.D. (Cornell, 1963); F. Maxton Mauney, Jr., M.D. (Duke, 1959); W. B. McCutcheon, Jr., M.D. (Virginia, 1952); Amir A. Neshat, M.D. (Isfahan University, Iran, 1960); Stephen K. Rerych, M.D. (Columbia, 1974); B. Gray Taylor, M.D. (Harvard, 1948); James P. Weaver, M.D. (Pennsylvania, 1969); David K. Wellman, M.D. (Duke, 1971); James S. Wilson, Jr., M.D. (North Carolina at Chapel Hill, 1975).

Medical Research Associate: Paul Hendrix, B.S. (Coll. of Charleston, 1970), B.H.S. (Duke, 1975).

Research Associates: Timothy Darrow, Ph.D. (State Univ. of New York, 1980); James W. Davis, M.S.E.E. (Duke, 1974); Gudrun Huper, M.A. (Stuttgart, Germany); Emmanuel C. Opara, Ph.D. (Univ. of London, 1984).

## DIVISION OF NEUROSURGERY

Professor: Robert H. Wilkins, M.D. (Pittsburgh, 1959), *Chief*.

Professor: Blaine S. Nashold, M.D. (Louisville, 1949).

Associate Professor: Wesley A. Cook, Jr., M.D. (Oregon, 1963).

Assistant Professors: Allan H. Friedman, M.D. (Illinois, 1974); Richard S. Kramer, M.D. (Duke, 1962); W. Jerry Oakes, M.D. (Duke, 1972); Ziaur Rahman, M.B. (Prince of Wales Med. Coll., India, 1968); Bruno J. Urban, M.D. (Germany, 1960).

Assistant Medical Research Professor: Roger Madison, Ph.D. (Duke, 1981).

Assistant Consulting Professors: Peter R. Bronec, M.D. (Duke, 1981); Bruce L. Kihlstrom, M.D. (North Carolina at Chapel Hill, 1972); Robert E. Price, Jr., M.D. (North Carolina at Chapel Hill, 1964).

Research Associates: Simon J. Archibald, Ph.D. (North Staffordshire Polytechnic, Bioengineering Unit, 1984); Janice O. Levitt, Ph.D. (Temple, 1963); Robert D. Pearlstein, M.S. (North Carolina at Chapel Hill, 1978).

## DIVISION OF ORAL SURGERY

Associate Professor: John C. Angelillo, D.D.S., M.D. (Duke, 1970), *Chief*.

Assistant Professor: Edward A. Dolan, D.D.S. (Maryland, 1971).

Assistant Consulting Professors: George A. Walsh, D.D.S. (Georgetown, 1972); Cornelius J. White, D.D.S. (Georgetown, 1951).

## DIVISION OF ORTHOPAEDIC SURGERY

Professor: James R. Urbaniak, M.D. (Duke, 1962), *Chief*.

Professors: Frank H. Bassett III, M.D. (Louisville, 1957); Frank W. Clippinger, M.D. (Washington, 1952); Donald E. McCollum, M.D. (Bowman Gray, 1953); James H. McElhane, Ph.D. (West Virginia, 1964), Experimental Surgery.

Associate Professors: John M. Harrelson, M.D. (Duke, 1964); James A. Nunley, M.D. (Tulane, 1973).

Associate Consulting Professor: Ralph W. Coonrad, M.D. (Duke, 1947).

Assistant Professors: John J. Callaghan, M.D. (Loyola, 1973); Robert D. Fitch, M.D. (Duke, 1976); William E. Garrett, M.D., Ph.D. (Duke, 1976); Richard D. Goldner, M.D. (Duke, 1974); William T. Hardaker, M.D. (Duke, 1973); Stephen N. Lang, M.D. (Illinois, 1965); Terry R. Malone, E.D.D. (Duke, 1985); Salutario Martinez, M.D. (Havana Univ., 1961); William J. Richardson, M.D. (Eastern Virginia, 1977).

Assistant Consulting Professors: William J. Callison, M.D. (Vanderbilt, 1953); Edwin B. Cooper, Jr., M.D. (Duke, 1966); J. Lawrence Frank, M.D. (Duke, 1965); Stephen A. Grubb, M.D. (Northwestern, 1974); J. George Jonas, M.D. (Zurich, 1954); C. Robert Lincoln, M.D. (Med. Coll. of Virginia, 1960); Angus M. McBryde, Jr., M.D.

(Duke, 1963); Leslie C. Meyer, M.D. (Nebraska, 1943); William S. Ogden, M.D. (Med. Coll. of Georgia, 1965); Edwin T. Preston, Jr. M.D. (Duke, 1960); Glydon B. Shaver, Jr., M.D. (Tennessee, 1961).

Adjunct Assistant Professor: Marcia M. Goldner, Ph.D. (Duke, 1972).

Consulting Associates: Richard F. Bruch, M.D. (Illinois, 1972); Albert T. Jennette, M.D. (North Carolina at Chapel Hill, 1959); Ronald A. Pruitt, M.D. (Med. Coll. of Virginia, 1959); William A. Somers, M.D. (Duke, 1972).

Research Associate: Anthony V. Seaber.

## DIVISION OF OTOLARYNGOLOGY

Professor: William R. Hudson, M.D. (Bowman Gray, 1951), *Chief*.

Associate Professors: T. Boyce Cole, M.D. (North Carolina at Chapel Hill, 1962); Joseph C. Farmer, Jr., M.D. (Duke, 1962); Patrick D. Kenan, M.D. (Duke, 1959).

Associate Medical Research Professor: John H. Casseday, Ph.D. (Indiana, 1970).

Assistant Professors: Samuel R. Fisher, M.D. (Duke, 1975); John T. McElveen, Jr., M.D. (North Carolina at Chapel Hill, 1978).

Assistant Consulting Professors: Beverly J. Adams, M.D. (Duke, 1977); Charles E. Clark III, M.D. (Michigan, 1968); Berrylin J. Ferguson, M.D. (Duke, 1980); Lynn A. Hughes, M.D. (Oklahoma, 1968); Clay W. Whitaker, M.D. (Western Reserve, 1952); C. Emery Williams, M.D. (Louisiana, 1963).

Adjunct Assistant Professor: Blake S. Wilson, B.S. (Duke, 1974).

Consulting Associates: Peter G. Chikes, M.D. (North Carolina at Chapel Hill, 1972); Edward V. Hudson, M.D. (Bowman Gray, 1962); Charles H. Mann, M.D. (West Virginia, 1966); Hubert C. Patterson, M.D. (North Carolina at Chapel Hill, 1974).

Research Associate: Ellen Covey, Ph.D. (Duke, 1980).

## DIVISION OF PLASTIC AND MAXILLOFACIAL SURGERY

Professor: Donald Serafin, M.D. (Duke, 1964), *Chief*.

Professors: Edward Clifford, Ph.D. (Minnesota, 1954); Robert M. Mason, D.M.D. (Kentucky, 1977), M.S.O. (North Carolina at Chapel Hill, 1979), Orthodontics; Galen W. Quinn, D.D.S. (Creighton, 1952), Orthodontics.

Associate Professors: John C. Angelillo, D.D.S. (Duke, 1970); Gregory S. Georgiade, M.D. (Duke, 1973); Ronald Riefkohl, M.D. (Tulane, 1972).

Associate Consulting Professor: Verne C. Lanier, Jr., M.D. (Vanderbilt, 1966).

Assistant Professors: William J. Barwick, M.D. (Tennessee, 1971); James A. Hoke, D.D.S. (Ohio State, 1972), M.S. (Michigan, 1976), Dentistry; Gregory L. Ruff, M.D. (Michigan, 1978).

Assistant Medical Research Professor: Bruce M. Klitzman, B.S.E. (Duke, 1974), Ph.D. (Virginia, 1979).

Consulting Associate: James T. White, D.D.S. (Loyola, 1966), M.S. (North Carolina at Chapel Hill, 1976), Dentistry.

Research Associate: Ruth S. Georgiade, M.A. (Duke, 1950).

## DIVISION OF UROLOGIC SURGERY

Professor: David F. Paulson, M.D. (Duke, 1964), *Chief*.

Professors: E. Everett Anderson, M.D. (Duke, 1958); Culley C. Carson III, M.D. (George Washington, 1971); Lowell R. King, M.D. (Johns Hopkins, 1956).

Associate Professors: George D. Webster, M.B., Ch.B. (Univ. Coll. of Rhodesia, 1968); John L. Weinerth, M.D. (Harvard, 1967).

Associate Consulting Professors: John H. Grimes, M.D. (Northwestern, 1965); Jack Hughes, M.D. (Pennsylvania, 1943).

Assistant Professors: Andrew F. Meyer, M.D. (New York, 1969); Cary N. Robertson, M.D. (Tulane, 1977); Philip J. Walther, M.D., Ph.D. (Duke, 1975).

Visiting Assistant Professor: Niall T. M. Galloway, M.B., Ch.B. (Aberdeen University, 1974).

Assistant Medical Research Professors: John W. Day, Ph.D. (Iowa, 1972); Karen S. Webb, Ph.D. (North Carolina at Chapel Hill, 1973).

Assistant Consulting Professors: A. James Coppridge, M.D. (Virginia, 1953); Joseph A. Fernandez, M.D. (Mississippi, 1975); Hector H. Henry II, M.D. (Tulane, 1965); Raymond E. Joyner, M.D. (Bowman Gray, 1968); Champil A. Ninan, M.D. (Christian Medical College, Vellore, India, 1957); Ignacio Sarmina, M.D. (Med. Coll. of Ohio, 1982); Sigmund I. Tannenbaum, M.D. (Duke, 1975); Edwin M. Tomlin, M.D. (Tennessee, 1946).

Associate: Steven H. Herman, Ph.D. (Duke, 1977).

Consulting Associates: James A. Bergant, M.D. (Kansas, 1969); Alexander Maitland III, M.D. (Yale, 1955); Randall B. Vanderbeek, M.D. (Duke, 1963).

Medical Center Instructors: Robert W. Andrews, M.D. (Bowman Gray, 1980); Oscar W. Brazil, Jr., M.D. (Louisiana, 1961).

## PROGRAM IN HEARING AND SPEECH DISORDERS

Professor: LuVern H. Kunze, Ph.D. (Iowa, 1962), *Director*.

Associate Professor: Bruce A. Weber, Ph.D. (Illinois, 1966).

Assistant Clinical Professor: John E. Riski, Ph.D. (Florida, 1976).

Assistant Consulting Professor: Jennifer Horner, Ph.D. (Florida, 1977).

Associates: Burton B. King, M.A. (Northwestern, 1955); Robert G. Paul, Ph.D. (Oklahoma, 1969).

Emeriti: D. Bernard Amos, M.D.; Lennox D. Baker, M.D.; Eugene D. Day, Ph.D.; John E. Dees, M.D.; Clarence E. Gardner, Jr., M.D.; Nicholas G. Georgiade, D.D.S., M.D.; J. Leonard Goldner, M.D.; Keith S. Grimson, M.D.; Guy L. Odom, M.D.; Raymond W. Postlethwait, M.D.; Will C. Sealy, M.D.; James H. Semans, M.D.; William W. Shingleton, M.D.

## Required Course

**SUR-205.** The required course in surgery, is given in the second year and consists of an eight week clinical clerkship. The primary goal is the presentation of those concepts and principles which characterize the discipline of surgery. The fundamental features which form the foundation of surgical practice are presented at seminars three times weekly. The subjects discussed include antiseptics, surgical bacteriology, wound healing, inflammation, fluid and electrolyte balance, shock, the metabolic response to trauma, biology of neoplastic disease, gastrointestinal physiology and its derangements, and blood coagulation, thrombosis, and embolism.

The students are divided into two groups, one at Duke and the other at the Veterans Administration Medical Center, and each works with two members of the surgical faculty. Students are assigned patients on the surgical wards for diagnosis and management, and clinical rounds are made three times weekly with the faculty. A full-time teaching resident is assigned for the course in order to provide the students with continuous and readily available instruction at all times. A one hour session is devoted daily to demonstrations by the surgical specialties including neurosurgery, orthopaedics, otolaryngology, plastic surgery, and urology. The students attend a weekly session in experimental surgery, during which each student serves in rotation as the anesthesiologist, first assistant, and operating surgeon in performance of surgical procedures on experimental animals.

## Electives

**SUR-219 (C). Advanced General and Thoracic Surgery. (Veterans Administration Medical Center).** The student will function as a subintern in surgery. Special attention will be given to those subjects in surgery common to all medical practices. Patients will be assigned to the students who will assume primary responsibility for their care under the supervision of the faculty and residents. The major emphasis will be on physiologic and pathologic changes, diagnosis, indications for operation, and observation of surgical procedures. Prerequisite: Permission of Dr. Grant. Weight: 8. *Grant and Wolfe*

**SUR-221 (C). Surgical Specialties and Ophthalmology (Veterans Administration Medical Center).** The student will attend selected conferences of all the surgical specialties and ophthalmology. Additionally, the student will select two or three of these specialties in which to concentrate experience (on one service at a time) in the operating rooms, clinics, and wards of the VA Medical Center. Pathophysiology, diagnosis, and treatment will be emphasized. Weight: 8. *Grant, Walther, Tiedeman, McCuen, Fisher, Friedman, Harrelson, and Barwick*

**SUR-222 (C). Clinical Dentistry.** Normal and abnormal development of head, face, jaws, and oral structures. Importance of teeth for mastication, speech, deglutition, growth and development, esthetics, general health, and for treatment of congenital and acquired abnormalities of the cranium, face, and jaws. Examination, diagnosis, and treatment of pediatric to geriatric oral dental disease. Orthodontic, surgical, and/or orthodontic-surgical management of orodentofacial problems. Weight: 1. *Quinn and Angelillo*

**SUR-227 (C). Advanced Urologic Clerkship.** The diagnosis, management, and surgical treatment of patients with urologic disorders will be stressed. Students will be afforded intimate association with the entire staff in the clinics, wards, and operating rooms and will participate in surgery. Cystoscopic and urographic diagnostic methods along with

other techniques will be taught. Weight: 4 or 8. *Paulson, Anderson, King, Weinerth, Webster, Carson, Walther, and Dunnick*

**SUR-228 (C). Clerkship in Pediatric Urology.** Designed to give an overview of urologic problems in the pediatric population. Will include patient contact and seminar material as well as ward and operating room experience in the diagnosis, treatment, and long-term follow-up of children with urologic disease. Weight: 4. *King*

**SUR-230 (C). Seminar in Urologic Diseases and Techniques.** Lecture-seminar course by members of the staff in urology and radiology, providing an introduction to the spectrum of urologic diseases, amplified by demonstration of urologic and radiologic diagnostic methodology. Clinical problems to be stressed include pediatric urology, obstructive uropathies, urinary calculi, male infertility, impotence, trauma, urodynamics, reconstructive urology and urologic malignancies. Informal seminars given weekly. Weight: 2. *Paulson, Anderson, King, Weinerth, Webster, Carson, Walther, and Dunnick*

**SUR-233 (C). Basic Neurosurgery Course.** Disease conditions commonly encountered in neurosurgery are presented. Clinical presentation of a disorder, such as brain tumor or head injury, is made by a member of the staff. Clinical features and plan of diagnostic investigation are stressed. The clinical disorder is used as a focal point from which to carry the presentation into the basic sciences are related to the clinical problem. Prerequisite: Student must have the approval of Dr. Cook to register for this course. Weight: 1. *Cook, Wilkins, Kramer, Oakes, and Friedman*

**SUR-234 (C). Pediatric Neurosurgery.** Survey of the major neurosurgical topics encountered in the pediatric age group. Emphasis will be given to the demonstration of clinical findings, necessary radiographic evaluation, and therapeutic alternatives in selected disease processes. Prerequisites: the student must have approval of Dr. Oakes to register for this course. Weight: 1. *Oakes*

**SUR-235 (C). Clinical Neurosurgery.** The course is designed for those students with a career interest in the neurological sciences. Duties include the workup and care of inpatients, work-up of clinic patients, assistance in the operating room, daily rounds, and night call. Weekly conferences are held in neurosurgery, neurology, neuropathology, and neuroradiology. There are also special lectures. Prerequisite: Student must have the approval of Dr. Wilkins to register for this course. Weight: 8. *Wilkins, Nashold, Cook, Kramer, Oakes, and Friedman*

**SUR-236 (C). Intermediate Clinical Neurosurgery.** This elective, intended as an intermediate experience between SUR-233 and SUR-235, focuses on the clinical presentation of common neurosurgical disorders, radiographic evaluation, and therapeutic options including the indications and contraindications for surgical intervention. The student will work-up one to three patients in the evening and assist at their operations the following day either once or twice per week and will attend the 8 A.M. Saturday neurological conference. Prerequisite: Permission of instructor. Weight: 1 or 2. *Wilkins*

**SUR-237 (C). Investigative Neurosurgery.** The student is assigned a project relating to the neurological sciences and, within reason, is provided with technical help, recording equipment, and experimental animals necessary for its completion. Each student plans and executes an individual project, with the help of the neurosurgery staff. Attendance at weekly conferences is required. Prerequisite: Student must have the approval of Dr. Wilkins to register for this course. Weight: 8. *Wilkins, Nashold, Kramer, and Friedman*

**SUR-239 (C). Clinical Otolaryngology.** This course will provide the student with a comprehensive survey of clinical otolaryngology. Duties will include participation in both outpatient clinic activities and inpatient care in addition to assisting in the operating room. The student will participate in ward rounds and in the various conferences held by the division. Weight: 4 or 8. *Hudson, Kenan, Cole, Farmer, and Fisher*

**SUR-240 (C). Otolaryngology Seminar.** This conference and demonstration course will provide an introduction to a variety of clinical problems in otolaryngology. Lectures will be supplemented with case presentations illustrating problems encountered in this field. Weight: 1. *Hudson*

**SUR-242 (C). Biological Basis of Hearing.** An examination of the relation of anatomy and physiology of the central auditory system to auditory discriminations. Original papers on neuroanatomy, electrophysiology, and psychophysics of hearing will be read and discussed. Also listed as Psychology 286 in the Graduate School Bulletin. Approval of instructor required. Weight: 3. *Casseday*

**SUR-244 (C). Introduction to Plastic, Reconstructive, and Maxillofacial Surgery.** This course is designed for students who may have a future interest in plastic surgery. Duties include the preoperative evaluation of patients, assisting in the operating room, making daily ward rounds and the participation in conferences. Weight: 4. *Serafin, Barwick, G. Georgiade, N. Georgiade, Pederson, Riefkohl, and Ruff*

**SUR-245 (C). Advanced Plastic, Reconstructive, and Maxillofacial Surgery.** This course is designed for students with a demonstrated interest in plastic and reconstructive surgery. Duties include active participation in the care of patients on the resident service. Emphasis is placed on preoperative evaluation, assisting in the operating room, making daily ward rounds, and the participation in conferences. Students will also be expected to attend the cleft palate board and resident clinics. Responsibilities also include participation in the care of acutely injured patients treated in the emergency room. Weight: 8. *Serafin, Barwick, G. Georgiade, N. Georgiade, Pederson, Riefkohl, and Ruff*

**SUR-246 (C). Clerkship in Plastic and Reconstructive Surgery.** The student participates in evaluation and management of plastic surgery patients, including preoperative assessment, surgical assistance, and postoperative follow-up in a private office and at Durham County General Hospital. Daily seminars cover core topics such as skin and surgical techniques, wound healing, and scars. Prerequisite: Permission of instructor. Weight: 4. *Lanier*

**SUR-247 (C). Plastic Surgery Research.** Students will be engaged in scholarly activities which are active, in-depth learning experiences related to microvascular, plastic and/or reconstructive surgery. The students will be expected to design, execute, and analyze data and to formulate hypotheses and draw conclusions from their projects. Weight: 1-8. *Klitzman and Serafin*

**SUR-255 (C). Directed Study in Speech/Language Pathology and Audiology.** Individual directed study in selected topics concerning normal and abnormal hearing, language and speech functions. In consultation with a faculty member, each student will select one or more topics within the following areas: (a) the auditory system and hearing loss; (b) development and disorder of language and speech of children; (c) language and speech disorders of neurologically impaired adults (aphasia, dementia, neglect, dysarthria, dysphagia syndromes); (d) voice disorders and laryngectomy; (e) speech disorders secondary to cleft palate and other craniofacial anomalies; (f) stuttering. Emphasis on fundamentals of normal and abnormal function and principles of evaluation and management of disorders in each area. Prerequisite: Permission of instructor. Weight: 1. *Kunze, Weber, Horner, Riski, and King*

**SUR-259 (C). General Principles of Orthopaedics.** A full-time or part-time experience on the orthopaedic service with duties and responsibilities similar to a junior intern. Inpatient care, outpatient examination, and operating room experiences are included. Individual or group discussions each day with attending staff. The purpose of the course is to present broad concepts of orthopaedics to students planning general practice, pediatrics, allied surgical specialties, or orthopaedics. Weight: 4 or 8. *Urbaniak, Clippinger, McCollum, Bassett, Harrelson, Hardaker, Nunley, R. Goldner, Garrett, L. Goldner, Fitch, Lang, Richardson and Callaghan*

**SUR-261 (C). Office and Ambulatory Orthopaedics.** A full or part-time experience on the orthopaedic service with duties and responsibilities similar to a junior intern. Inpatient care, outpatient examination, and operating room experience are included. Individual or group discussions each day with attending staff. The purpose of the course is to offer clinical experience to students who have completed Surgery 259. Rotations will be similar to those of Surgery 259. Prerequisite: SUR-259. Weight: 8. *Bassett, Clippinger, J. Goldner, McCollum, Urbaniak, Bugg, Coonrad, Lincoln, Glasson, Lang, Frank, Harrelson, Hardaker, R. Goldner, Garrett, Nunley, Richardson and Callaghan*

**SUR-267 (C). Introductory Clinic Course in Cerebral Palsy and Children's Orthopaedics.** This introductory clinic course is arranged for those interested in neurological disease, pediatric orthopaedic problems, and related fields. This will give the student a working experience in the examination and evaluation of patients under clinical conditions which demonstrates both the individual and multidisciplinary group approach to the whole patient with complex neurologic and orthopaedic conditions as they affect both growth and development. Outpatients and inpatients are utilized for subject material. Staff personnel readily available for individual discussion and seminars. Weight: 2 or 4. *Coonrad, Fitch, and cerebral palsy staff*

**SUR-276 (C). Advanced Clerkship in Pediatric Surgery.** This course is designed to familiarize the student with the whole range of surgical problems in children but with emphasis on the pathophysiology of surgical and related problems in the newborn infant and the total care of the child with a malignancy. The student is encouraged to participate fully in the patient care aspects of the service, and is considered an integral part of the patient care team. Although the course may be taken for the full eight weeks, it is felt that a four-week experience is probably optimal for most students. It may be combined with other advanced surgical clerkships, such as Surgery 299; or with four weeks of neonatology, Pediatrics 225; or other courses depending on the interests of the student. Prerequisites: Brief pre-enrollment interview with Dr. Filston. Weight: 4 or 8. *Filston and Shorter*

**SUR-277 (C). Orthopaedic Research.** Individual projects are assigned for completion during a limited period of time. A student works with an investigator in the orthopaedic laboratory either at Duke Medical Center or the Durham Veterans Administration Medical Center. Clinical investigative studies are also available at both institutions. Weight: 8. *Urbaniak, Harrelson, R. Goldner, Garrett, Nunley, orthopaedic senior staff, and house staff*

**SUR-281 (C). Introduction to Fractures and Musculoskeletal Trauma.** Students will participate in the emergency management of patients through the Duke Emergency Room or through Durham County General Hospital. Principles of fractures in trauma will be given throughout the week at specified times and attendance at fracture conference will be required on Wednesdays and Saturdays at 7:00 A.M. Participation in orthopaedic clinic (seeing patients) one day per week is required. Weight: 3. *Entire orthopaedic staff at Duke or Durham County General Hospital supervised by Dr. Urbaniak at Duke, Dr. Lincoln at Durham County General Hospital*

**SUR-282 (C). Advanced Surgery—Emphasis Cancer.** Advanced concepts in surgical oncology will be presented in seminars, and in ward, tumor clinic, and operating room experiences. Seventy-five percent of student time will be devoted to clinical cancer management and related basic science topics. The remaining 25 percent will relate to surgery in general. Weight: 8. *Seigler, Leight, Iglehart, Meyers, and Wolfe*

**SUR-283 (C). Advanced Surgery—Emphasis Cardiovascular-Thoracic.** Advanced concepts in surgery will be presented in seminars and in ward, clinic, and operating room experiences. Fifty to 75 percent of the time will be devoted to cardiovascular-thoracic surgery and related basic topics, and the remainder to surgery generally. Weight: 8. *Sabiston, Jones, Lowe, Oldham, Rankin, Smith, Ungerleider, Van Trigt, Wechsler, Wolfe, and Young*



**SUR-284 (C). Advanced Surgery—Emphasis Transplantation.** Advanced concepts in surgery will be presented in seminars, and in ward, clinic, and operating room experience. Fifty percent of the time will be devoted to clinical transplantation of the kidney and liver and related basic topics. The remainder of the time will be spent on surgery generally. Weight: 8. *Bollinger, Amos, McCann, Meyers, Seigler, Stickel, and Weinerth*

**SUR-299 (C). Advanced Surgical Clerkship.** This course is structured to provide the student with an advanced comprehensive approach to surgical disorders. Each student will work in the clinics, on the wards, in the operating rooms side by side with one senior surgeon from this list: Sabiston, Akwari, Bollinger, G. Georgiade, Grant, Iglehart, Jones, Leight, Lowe, Meyers, McCann, Oldham, Pappas, Peete, Rankin, Seigler, Smith, Stickel, Ungerleider, Van Trigt, Vernon, Wolfe, and Young. Weight: 4 or 8.

**SUR-301 (C). Emergency Department Surgical Care.** Students desiring additional experience working with care of emergency surgical patients will be assigned to the emergency department one night per week for each credit desired. They will participate in the diagnosis and care of acute and traumatic surgical emergencies. Weight: 1-3. *Stickel*

**SUR-303 (C). Trauma Service.** This course is designed to provide students interested in trauma care with further experience both in the emergency department and on the inpatient trauma service. The course will emphasize both triage and resuscitation for major and minor emergency problems in the emergency department and also preoperative and postoperative care on the inpatient trauma service. The student will have a full-time experience by assuming duties and responsibilities similar to a junior intern. Emphasis will be placed on developing skills in the care of patients with multisystem injuries in the emergency department, inpatient service, and operating room. Students will work in conjunction with the attending staff and the residents on the trauma service. Weight: 4. *Moylan and G. Georgiade*

**SUR-304 (C). Nutrition in the Hospitalized Patient.** This course is designed to acquaint students with the techniques of nutritional assessment including somatic protein, visceral protein mass, body fat mass, immune competence, and metabolic balance studies. Students will learn to determine basal energy expenditure and nitrogen requirements. The metabolic effects of acute and chronic starvation as well as stress and infection and the role played by these events in the hospital course of patients will be studied. Emphasis will be placed on techniques of nutritional support including routine and specialized hospital diets, routine and modular tube feeding diets, peripheral intravenous protein sparing, and total parenteral nutrition. At the completion of the course, students will have a thorough grasp of clinical nutrition and be able to apply specialized oral diets, tube feeding diets, and intravenous nutrition. Weight: 1. *Grant*

## Special Interdisciplinary Course

**IND-300(B) or Interdisciplinary Seminar in Medical-Legal-Ethical Issues.** The seminar will be composed of students in approximately equal number from the Medical, Divinity, and Law Schools, and will explore important medical, legal, and ethical features of current issues (e.g., transplantation, euthanasia, abortion). Faculty and resource persons from all three schools will participate in the seminar. Up to four introductory sessions in the fall semester for all participating students and faculty will be concluded with arrangement of interdisciplinary terms and selected topics. Student teams will meet during the winter and consult at intervals with faculty. All semester participants will reassemble for a series of weekly meetings ending in mid-March, to present and discuss the topics researched. Any topics, properly focused, may be considered. Weight: 2. *Gianturco (medicine), Shimm (law), Smith (divinity) and other faculty members from all three schools*

## Special Interdisciplinary Training Programs

**BMS-301(B). Biometry and Medical Informatics Study Program.** This study program offers students the opportunity to explore, in the context of a biomedical application, one or more of the basic disciplines by which data are collected and stored, data are managed and communicated, hypotheses are constructed, data are evaluated and knowledge is integrated. These core disciplines include: artificial intelligence, biostatistics, database methods, decision theory, epidemiology, hardware design and instrumentation, imaging, signal analysis, simulation and modeling, and systems development. The emphasis, therefore, is on study and research into the methodological principles of biometry and medical informatics which are involved in biomedical problem-solving situations rather than on the area of biomedical science in which the application occurs.

Because of the multidisciplinary nature of this program, each student will select two faculty preceptors: a discipline preceptor will have a background in biometry, computer science, engineering or epidemiology; an applications preceptor will have a background in a medical basic science or clinical science area and will be involved with a project utilizing one of the disciplines that constitute biometry and medical informatics. The student, together with the faculty preceptors, will design an appropriate study plan which concentrates on one or two core disciplines. This plan will consist of the following three components:

1. *Individual research project.* Under the supervision of the discipline and applications preceptors, students will participate in an individual research experience which will constitute the major component of the study program. This experience will be structured to provide an in-depth exposure to the use of techniques from the core discipline to address a real world biomedical problem.
2. *Courses.* An overview seminar will expose each student to the vocabulary and the basic principles and concepts of each of the core disciplines. In addition to this required course, each student will be expected to acquire some depth of knowledge in the core disciplines chosen for concentration through a selection of two or three discipline-specific courses: BMI-211(B) Probability and Statistical Inference; BMI-212(B) Design of Etiological, Clinical and Experimental Studies; BMI-213(B) Medical Data Management and Statistical Computing; BMI-217(B) Clinical Decision Analysis; BMI-233(B) Biomedical Uses of Computers; BMI-234(B) Artificial Intelligence in Medicine; BMI-235(B) Microprocessors and Digital Instruments; CFM-240(B) Epidemiologic Methods in Primary Care Research; BME-204 Measurement and Control of Cardiac Electrical Events; BME-233 Modern Diagnostic Imaging Systems; CPS-241 Data Base Methodology.
3. *Research seminar.* Throughout the year, students and faculty members will meet regularly to review ongoing research in the core disciplines. Students will be expected to present their work in this context as a means of developing presentation skills and obtaining input from investigators who are not directly involved in their project.

Core Laboratories and Research Opportunities: Medical Informatics Laboratory—Dr. W. Edward Hammond, Dr. William W. Stead; Primary Care Epidemiology Laboratory—Dr. W. Eugene Broadhead, Dr. Kathryn Magruder—Habib; Clinical Epidemiology Laboratory—Dr. David B. Pryor, Dr. Frank E. Harrell, Jr., Dr. Kerry L. Lee, Dr. Lawrence H. Muhlbaier; Cardiac Electrophysiology Laboratory—Dr. Roger C. Barr; National Biomedical Simulation Resource—Dr. J. Mailen Kootsey; Cardiovascular Biophysics Laboratory—Dr. Charles F. Starmer; Applications Preceptors—Any faculty member with an appointment in a medical center department and a laboratory involving applications of biometry and medical informatics can be an applications preceptor.

Program directors: Drs. William E. Wilkinson and William W. Stead

**BPE-301(B). Biophysics/Bioengineering Study Program.** This interdepartmental program provides an opportunity for medical students in the elective year to participate in research in several areas of basic and clinical medicine where quantitative and engineering methods are employed. The range of subject material included in the program is broad,

ranging from the development of instrumentation to theoretical studies on chemical and physical mechanisms in biomedical systems. Some example areas are the development and application of new imaging techniques and the application of computer simulation to the study of biochemical and physiological systems.

In this program, each student will select a faculty preceptor in consultation with the program directors and will design an individual plan in cooperation with the preceptor and directors. The primary emphasis of each student's plan is expected to be research. Students may, however, also be advised to take an existing course or to set up a tutorial with a faculty member to fill in deficient areas or to acquire needed quantitative or engineering skills. Depending on the subject area selected, a student may initiate a new research project of limited scope or take over a well-defined part of an existing project. Students will be expected to produce some form of written summary of their work, possibly (but not necessarily) a paper suitable for publication in a scientific journal.

Students taking this program should have some prior training or experience in one or more of the following areas: mathematics, computer science, physics, chemistry, or engineering (electrical, mechanical, biomedical, etc.).

Participating faculty: Jacob J. Blum, Ph.D.; H. Cecil Charles, Ph.D.; Mark W. Dewhirst, D.V.M., Ph.D.; Eric L. Efficmann, M.D.; C. Craig Harris, M.S.; Michael L. Hines, Ph.D.; Ronald J. Jaszczak, Ph.D.; Frans F. Jöbbsis, Ph.D.; Edward A. Johnson, M.D.; G. Allan Johnson, Ph.D.; Robert H. Jones, M.D.; Michael C. Kohn, Ph.D.; J. Mailen Kootsey, Ph.D.; John W. Moore, Ph.D.; James R. Oleson, M.D., Ph.D.; H. Dirk Sostman, M.D.; Madison S. Spach, M.D.; Leonard D. Spicer, Ph.D.; Charles F. Starmer, Ph.D. and Michael R. Zalutsky, Ph.D.

Program Directors: Drs. Allen Johnson and Mailen Kootsey

**BSP-301(B). Biobehavioral Study Program.** The study program is oriented toward the medical student's obtaining an understanding of basic processes underlying normal pathological human and laboratory animal behavior. The course and preceptorship offerings are designed to familiarize the student with significant developments in the behavioral sciences, investigative methodology used to examine human behavior and its neurobiological underpinnings, and the application of findings to medicine.

Students are encouraged to select an area of research concentration and arrange to choose a faculty member as a research preceptor by contacting the study program director to discuss their interests. They will be given the opportunity to focus on some determinant of human behavior which may include neurobiological, psychological, developmental, or social factors. Students may choose to spend a significant portion of their time in closely supervised laboratory and associated library research in an area of the student's interest, resulting in a report of the work. Specific science interests can be augmented through seminars, guided readings, and appropriate courses providing a greater familiarity with current issues in the biobehavioral sciences.

The following course is required of all students: PSC-223(B) Neurobiological Basis of Behavior.

Alternatives to the intensive research concentration are also offered. In addition to courses in the department of psychiatry, students may take part in other study programs or take courses given in the medical and graduate schools.

Faculty members who are potential research preceptors have been identified for those students wanting an intensive research experience: Garth Bissette, Ph.D.; Dan G. Blazer, M.D., Ph.D.; Everett H. Ellinwood, M.D.; Linda K. George, Ph.D.; Jau-Shyong Hong, Ph.D.; Clinton D. Kilts, Ph.D.; Cynthia M. Kuhn, Ph.D.; James E. Lee, M.D., Ph.D.; David J. Madden, Ph.D.; George L. Maddox, Ph.D.; Charles B. Nemeroff, M.D., Ph.D.; Kenneth Rockwell, M.D.; Saul M. Schanberg, M.D., Ph.D.; Susan S. Schiffman, Ph.D.; Rochelle D. Schwartz, Ph.D.; Theodore A. Slotkin, Ph.D.; Richard S. Surwit, Ph.D.; Robert J. Thompson, Jr., Ph.D.; Richard D. Weiner, M.D., Ph.D.; Jay M. Weiss, Ph.D. and Redford B. Williams, M.D.

Program Directors: Drs. Edward Clifford and Everett Ellinwood

**CVS-301(B). Cardiovascular Sciences Study Program.** This interdepartmental study program is designed to allow students to obtain experience in an aspect of basic science research related to the cardiovascular system. The goal of the program is to introduce students to the various research opportunities available to those potentially interested in a

career in cardiovascular studies. Because cardiovascular research encompasses a wide range of disciplines, the faculty members in this study tract come from a number of departments including cell biology biochemistry, genetics, microbiology, immunology, pathology and pharmacology. The duration of the study program is flexible (from nine to twelve months) and students can start during any term. Students who elect this study program will undertake a research project in a laboratory under the guidance of a faculty preceptor. In addition, students are encouraged to take course work each term to complement their research interests. Because a broad range of research opportunities are available, course work is individually tailored by the faculty preceptor to the interests of the student.

Faculty preceptors: Dolph O. Adams, M.D., Ph.D.; Nels C. Anderson, Ph.D.; Page A. W. Anderson, M.D.; Perry J. Blackshear, M.D., D.Phil.; Jacob J. Blum, Ph.D.; R. Randal Bollinger, M.D., Ph.D.; Enrico M. Camporesi, M.D.; Marc G. Caron, Ph.D.; Rosalind A. Coleman, M.D.; Sharyn A. Endow, Ph.D.; Donald L. Granger, M.D.; Joseph Greenfield, M.D.; Stuart Handwerker, M.D.; Barton F. Haynes, M.D.; Michael S. Hershfield, M.D.; Edward W. Holmes, M.D.; Bruce Klitzman, Ph.D.; J. Mailen Kootsey, Ph.D.; Robert J. Lefkowitz, M.D.; Ann LeFurgey, Ph.D.; Melvyn Lieberman, Ph.D.; Elwood Linney, Ph.D.; Lazaro J. Mandel, Ph.D.; Robert Plonsey, Ph.D.; Keith A. Reimer, M.D., Ph.D.; Frederick H. Schachat, Ph.D.; Madison S. Spach, M.D.; Deborah A. Steege, Ph.D.; Gary L. Stiles, M.D.; Harold C. Strauss, M.D.; Judith L. Swain, M.D.; Kenneth A. Taylor, Ph.D.; and R. Sanders Williams, M.D.

Program Director: Dr. Judith Swain; Associate Directors: Drs. Page Anderson, Mailen Kootsey, Mel Lieberman, and Madison Spach

**EDR-301(B). Endocrinology and Reproductive Biology Study Program.** This inter-departmental program is designed to provide third-year medical students with an opportunity for in-depth study of cellular endocrinology, neuroendocrinology, and reproductive biology as these relate to the function of the endocrine and reproductive systems in health and disease. In this program, major emphasis is placed on development of a plan of independent study for each student which is based on a tutorial or preceptor association with an individual member of the program faculty. In addition, all members of the program, including faculty, meet as applicable for discussions, and guest lectures on selected topics of interest to the entire group. CBI 417, PHR-335, and CBI 418/424 are an integral part of the program. Although the program traditionally begins in September, its structure is potentially flexible enough to accommodate those who wish to begin in any term, including the summer term. It should be emphasized that while the primary aim of the program is to provide an intensive research experience in endocrinology and reproductive biology, opportunity is provided within the program format for students to broaden their basic science background by taking courses which may be unrelated to the subject matter of the study program.

For all students, the program consists of the following components:

1. *Individual Tutorial.* This is carried out under the supervision of one or more members of the program faculty selected by the student in consultation and with the approval of the program directors. This tutorial will generally involve laboratory research in a particular area of endocrinology or reproductive biology. Before entering the program, students are asked to complete their tutorial arrangements. To facilitate this process, the program director will direct students to appropriate members of the program faculty or other members of the medical school faculty who hold a primary or secondary appointment in a basic science department and whose research interests would permit them to participate in the program.
2. *Lecture Courses.* Specific course offerings in this program are: PHR-335, Molecular Pharmacology; CBI 417, Cellular Endocrinology; CBI 418, Reproductive Biology; CBI 424, Seminar in Reproductive Biology. In order to provide additional breadth of preclinical experience related to immediate or long-term interests, students are encouraged to take up to four units of course work per term. As noted above, individual course selections are not limited to those related to endocrinology or reproductive biology, although consultation and approval by the Program Director is required before making final selections.

Program faculty and major areas of specialization: Cellular and molecular endocrinology—Nels Anderson, M.D.; Perry Blackshear, M.D.; J. J. Blum, Ph.D.; Warner Burch, M.D.; Mark Caron, M.D.; Rosalind A. Coleman, M.D.; Marc Drezner, M.D.; Stuart Handwerker, M.D.; Edward W. Holmes, M.D.; Ken McCarty, Sr., Ph.D.; Ken McCarty, Jr., M.D., Ph.D.; George Padilla, Ph.D.; Steven R. Vigna, Ph.D.; Neuroendocrinology—Cynthia Kuhn, Ph.D.; Lee Tyrey, Ph.D.; Reproductive biology—Patricia Saling Ph.D. and David Schomberg, Ph.D.

Program Coordinator: Dr. George M. Padilla

**ISP-301(B). Immunology Study Program.** Objectives: this study program is designed for students whose career goals lie in one of the many clinical specialties which interface broadly with immunology; allergy-immunology, infectious diseases, rheumatology, hematology, transplantation, and oncology. A basic but thorough introduction to immunology is developed in MIC 291(B), which also emphasizes critical discussion of original research papers. A further and more clinically oriented analysis is provided in the core course, Medical Immunology (MIC-330B), which emphasizes the role of immunologic mechanisms in various human disease states. Each student chooses a faculty preceptor, with whom he/she works on an original research project. It is encouraged that the student not be merely injected into the continuum of the preceptor's research interests but, rather, that he/she develop an individual project which can be completed during the study program. The primary goals of the program are to encourage and develop the student's own creativity, to expose the student to the research interests and philosophies of the entire division and to help the student gain a useful personal perspective on current immunologic thought with an emphasis on clinical relevance. The student's efforts and time are generally divided as follows:

1. *Preceptorship.* The major emphasis of the program throughout the year, during which the student functions much as a graduate student in the division. 30 hours or more per week.
2. *Comprehensive Immunology (MIC-291B).* An in-depth course in the basic concepts of immunology. Analysis of antigens and antibodies is followed by an emphasis on the organization and cellular and molecular aspects of the immune system, its regulation and effector mechanisms. 4 hours per week, fall term.
3. *Medical Immunology (MIC-330B).* A brief review of basic concepts of immunology is followed by in-depth discussions of the role of immune mechanisms in the pathogenesis and treatment of human diseases. Principle emphasis is placed on immune deficiency diseases, hypersensitivity, alloimmunity, transplantation, infectious diseases, autoimmunity, tumor immunology, and immunohematology. When applicable the classes include patient presentations and laboratory demonstrations. The course meets daily, permitting each disease state to be covered in considerable depth. 5 hours per week, spring term.
4. *Seminars for Research Progress.* Throughout the year fellows and students in the division present brief informal seminars on their on-going research. The discussion that follows is of great help to the presenter and allows the student to observe and participate in critical analysis of research before it is at the publication or formal seminar stage. 1 hour per week.
5. *Immunology Division Seminar.* A series of formal seminars by division faculty and visiting scientists. 1-2 hours per week.
6. *Additional Course Work.* The student may elect to take any of several courses in immunology and related fields, but is generally discouraged from excessively diluting the laboratory experience.

Participating faculty and their research interests: D. B. Amos, M.D. (immunology); D. O. Adams, M.D. (pathology); Y. Argon, Ph.D. (immunology); A. Balber, Ph.D. (immunology); R. C. Bast, Jr., M.D. (medicine and immunology); R. R. Bollinger, M.D., Ph.D. (surgery and immunology); D. P. Bolognesi, Ph.D. (surgery and immunology); R. H. Buckley, M.D. (pediatrics and immunology); R. B. Corley, Ph.D. (immunology); P. Cresswell, Ph.D. (immunology); J. R. Dawson, Ph.D. (immunology); O. J. Finn, Ph.D. (immunology); B. F. Haynes, M.D. (medicine and immunology); D. D. Kostyu, Ph.D. (immunology); R. S. Metzgar, Ph.D. (immunology); D. Pisetsky, M.D., Ph.D. (medicine and immunology); W. Rosse, M.D. (medicine and immunology); F. Sanfilippo, M.D., Ph.D. (pathology and immunology); K. H. Singer, Ph.D. (medicine and immunology); F. Ward, Ph.D. (immunology).

**IDP-301(B). Infectious Diseases Study Program.** Objectives: Knowledge of infectious diseases is relevant to care of patients of all ages and in each clinical specialty from surgery, pediatrics and medicine to obstetrics-gynecology and family medicine. This study program is designed to provide students with the opportunity to directly explore one facet of infectious diseases in a laboratory setting coupled with several lecture/seminar courses designed to provide some breadth of knowledge of the host, microorganism, and their interactions. The goals of the program are to instill a critical assessment of information, to provide the opportunity for creative acquisition of data, to encourage independent thinking, and to provide insight into modern technology as well as to the interrelationship of clinical infectious diseases with basic microbiology and immunology.

Each student selects a faculty preceptor with whom to work on an original research project. It is expected that the student will develop his or her own project within the framework of a laboratory's interests but will design his own experiments, critically assess the relevant literature, learn to evaluate data, and have the opportunity to solve the problems associated with the project. Appropriate guidance and assistance will be provided by the faculty and others within the laboratory setting.

1. *Preceptorship.* This is the major emphasis of the program, with students functioning essentially as graduate students. 30 hours or more per week.
2. *Courses.* During the fall term students will be required to take one course, Principles of Infectious Disease (MIC-301B). This course provides discussion of the basic biology of a broad spectrum of microorganisms, the diseases they cause, and the host response to these infections. The first eight weeks of the term is devoted to bacterial infections and is organized by organ system. In the second eight weeks, viral diseases are presented, ranging from intrauterine infections to oncogenes. During the spring term students will be required to take either Medical Immunology (MIC-330B) or Virology and Viral Oncology (MIC-252B), the selection being determined by the student's laboratory research interests.
3. *Seminars.* Students in the Infectious Diseases Program will attend a weekly seminar in which faculty members, fellows and students present their ongoing research. Such presentations enable the student to observe and participate in critical analysis of research before it reaches the publication stage.
4. *Additional Course Work.* Whereas other basic science electives in microbiology and immunology may be taken upon approval by the Program Director, the student is discouraged from excessively diluting his laboratory experience.

Participating faculty: Dani P. Bolognesi, Ph.D.; Rebecca H. Buckley, M.D.; Vickers Burdett, Ph.D.; Bryan R. Cullen, Ph.D.; Donald L. Granger, M.D.; Warner C. Greene, M.D., Ph.D.; John D. Hamilton, M.D.; Wolfgang K. Joklik, D.Phil.; Jack D. Keene, Ph.D.; Kenneth N. Kruezer, Ph.D.; Thomas G. Mitchell, Ph.D.; Joseph R. Nevins, Ph.D.; David J. Pickup, Ph.D.; Catherine Wilfert, M.D.

Program Directors: Dr. Jack D. Keene and Dr. Catherine Wilfert

**MCD-301(B). Molecular and Cellular Basis of Differentiation Study Program.** Objectives: This study program is designed to provide an opportunity for third-year medical students to spend a year interacting with a group of basic science faculty who utilize many of the modern techniques of biochemistry and molecular biology as applied to problems of health and disease. The primary objective will be to present basic concepts of differentiation to include the organization and retrieval of genetic information, hormonal regulation of gene expression in the differentiated state, the modulation of the differentiated state in relation to the cell cycle, time space and patterns in developing systems as a consequence of the control of gene expression, and tissue interactions in morphogenesis and differentiation. The organization of genetic information includes evidence of the mechanism of gene amplification in development and drug resistance, recent concepts regarding enhancer modification of hormone response, and specific examples of hormone induced gene expression. The mechanism(s) involved in cell surface interactions in lym-

phocyte differentiation, the nervous system and extracellular matrix regulation of morphogenesis and differentiation will be discussed.

In order to provide a comprehensive coverage, the program has been organized on a multidisciplinary level to include selected faculty from biochemistry, physiology, pathology and anatomy.

Upon entrance into the program, the student, with the guidance of the program director, will interview members of the faculty, as described below, to select a mentor that will complement his or her career aspirations. The student in collaboration with the mentor will then prepare a brief outline of the goals to be accomplished. As the program develops, the students will present a progress report, and in the final phase will provide a written report of the studies performed, detailing the initial hypothesis, the techniques that were learned, the results obtained and the conclusions. The report should contain a critique of the student's experience with suggestions for improvement in the overall program.

*First semester:* the first semester will consist of a series of lectures (see BCH320B) given three times a week to cover basic principles and a series of seminars conducted by the students under the guidance of the mentor. The student will have complete freedom to interact with the faculty, postdocs, graduate students, with a schedule to provide a maximum time for the pursuit of his or her project to be conducted in collaboration with the mentor. This in no way excludes the possibility of attending one or two carefully selected courses that may complement his or her goals.

*Second semester:* the second semester will consist of lectures (see BCH321B) given twice a week designed to extend and complement the information content provided in the first semester.

Opportunities for tutorials: Steroid hormones and differentiation—Drs. K. S. McCarty, Sr., George M. Padilla and Kenneth S. McCarty, Jr.; Polypeptide hormones and differentiation—Drs. Robert M. Bell and Perry J. Blackshear; Development, cell organelles and differentiation—Drs. Russell E. Kaufman, Sheila Counce and David M. Schlossman; Chromatin structure and function—Drs. Tao-shih Hsieh and Montrose Moses; DNA polymerases and DNA processing in differentiation—Drs. Paul L. Modrich, S. R. Gross, Deborah A. Steege, Arno L. Greenleaf, Ronald C. Greene, Patricia M. Saling and Frederick Schachat; Complex carbohydrates in cell recognition in differentiation—Drs. Robert L. Hill and Bernard Kaufman; Membranes, protein structure and function—Drs. David C. Richardson, Jane S. Richardson, Robert E. Webster, Robert J. Lefkowitz and Emma R. Jakoi; Enzymes in development and differentiation—Drs. I. Fridovich, Henry Kamin, K. V. Rajagopalan, Lewis M. Siegel, Michael S. Hershfield, and Nicholas M. Kredich

Directors: Drs. Kenneth S. McCarty, Sr. and Sheila Counce

**NSS-301(B). Neurosciences Study Program.** The neurosciences study program offers the opportunity to learn basic sciences by focusing on the nervous system under careful supervision. Fundamental principles of physiology, biochemistry, pharmacology, and anatomy will be learned through informal study of organization and cellular neuroscience. The program lasts thirty-two weeks and emphasizes a basic research experience or tutorial under the guidance of a preceptor, a monthly seminar with visiting neuroscientists and the opportunity to audit appropriate neurobiology courses during the year. Students will be encouraged to read widely in areas of basic science under the tutelage of their preceptor.

1. *Research Experience:* The basic component of the Neurosciences Study Program is an in-depth research experience in a basic science laboratory under the supervision of one of the participating faculty. There are three levels of involvement in the research process:

a) Level 1 is an in-depth research experience in which the student can expect to do research leading to one or more publications of which the student is the primary author. Students in this category are encouraged to work in the laboratory for twelve months when possible, and they are advised to only audit neurobiology courses.

b) Level 2 is a research experience in which the student works in a laboratory to gain familiarity with equipment, techniques, and the process of doing research. It is expected that the student will work for nine months and contribute to an ongoing project in the laboratory. The student could expect to be a co-author

of published article. Students in this category are encouraged to register for credit for courses in the Department of Neurobiology.

c) Level 3 is for students who do not wish to do laboratory work, but who wish additional training in neuroscience. The students will select a mentor, write a review article in a specific area, and take courses in the Department of Neurobiology and other departments.

2. *Initial and Final Reports*: An important component of the program is the initial and final reports prepared by the student with the help of his/her preceptor. The initial report is a written statement of the student's goals for the year with a detailed plan for accomplishing these goals. Usually this takes the form of stating the problem to be studied, the hypothesis, and an outline of the work to be done. The final report will usually take the form of a research paper or literature review suitable for publication. Publication is not required, but many students have been successful in publishing a report with their preceptors.

Participating faculty: Dr. Mohamed B. Abou-Donia, Professor of Pharmacology; Dr. Robert R. H. Anholt, Assistant Professor of Neurobiology; Dr. Douglas C. Anthony, Assistant Professor of Pathology; Dr. Jorge V. Bartolome, Associate Medical Research Professor of Pharmacology; Dr. Barbara J. Crain, Assistant Professor of Pathology and Neurobiology; Dr. James N. Davis, Professor of Medicine (neurology) and Pharmacology; Dr. Irving Diamond, James B. Duke Professor of Psychology and Professor of Neurobiology; Dr. David Fitzpatrick, Assistant Professor of Neurobiology; Dr. William C. Hall, Professor and Chairman of Neurobiology; Dr. Darrell V. Lewis, Associate Professor of Pediatrics and Neurobiology; Dr. James McNamara, Professor of Medicine (neurology) and Associate Professor of Pharmacology; Dr. John W. Moore, Professor of Neurobiology; Dr. J. Victor Nadler, Associate Professor of Pharmacology and Neurobiology; Dr. Saul Schanberg, Professor of Pharmacology and Biological Psychiatry; Dr. Sidney A. Simon, Professor of Neurobiology and Medical Research Associate Professor of Anesthesiology; Dr. George Somjen, Professor of Cell Biology; Dr. Wilkie A. Wilson, Associate Professor of Pharmacology and Medicine.

Program Director: Dr. James N. Davis; Associate Director: Dr. Wilkie Wilson

**PSP-301(B). Pathology Study Program.** Pathology is the study of disease that utilizes structural and functional changes to gain information about the human organism's response to injury. The goal of the pathology study program is to provide the medical student an in-depth and thorough learning experience in the anatomical basis of disease, under the guidance of a senior faculty preceptor. The essential elements of this program are (1) organized course work, (2) independent but guided research experience (bench or library), and (3) active participation in small group seminars.

To meet the diverse interests and needs of Duke medical students, there will be three tracks within the pathology study program.

The Department of Pathology will host an "open house" in the Central Teaching Facility where interested students may visit with study program advisors and other members of the faculty. Following the general information session, interested students will meet with advisors to establish interviews for individual mentors. Every student will have a study program advisor, and an individual preceptor. The schedule of every student electing the Pathology Study Program must be reviewed and approved by Dr. Bradford prior to registration

Participating faculty: Dolph O. Adams, M.D., Ph.D.; Douglas C. Anthony, M.D., Ph.D.; Darell D. Bigner, M.D., Ph.D.; Michael J. Borowitz, M.D., Ph.D.; Edward Bossen, M.D.; William D. Bradford, M.D.; Stephen Bredehoeft, M.D.; Peter C. Burger, M.D.; Robert H. Christenson, Ph.D.; David L. Cooper, M.D., Ph.D.; Barbara Crain, M.D., Ph.D.; James D. Crapo, M.D.; Jane T. Gaede, M.D.; Doyle G. Graham, M.D., Ph.D.; Donald B. Hackel, M.D.; Raymond E. Ideker, M.D., Ph.D.; Gordon K. Klintworth, M.D., Ph.D.; John A. Koepke, M.D.; Richard M. Levenson, M.D.; James E. Lowe, M.D.; Kenneth S. McCarty, Jr., M.D., Ph.D.; George Michalopoulos, M.D., Ph.D.; Eileen M. Mikat, Ph.D.; Salvatore V. Pizzo, M.D., Ph.D.; Philip C. Pratt, M.D.; Alan Proia, M.D.; Keith A. Reimer, M.D., Ph.D.; Victor L. Roggli, M.D.; Fred Sanfilippo, M.D., Ph.D.; S. Clifford Schold, Jr., M.D.; John D. Shelburne, M.D., Ph.D.; Joachim Sommer, M.D.; Charles Steenbergen, M.D., Ph.D.; Cheryl A. Szpak, M.D.; John Toffaletti, Ph.D.; F. Stephen Vogel, M.D.; and Frances Widmann, M.D.

Directors: Drs. William D. Bradford, Donald B. Hackel and F. Steven Vogel

**SPV-301(B). Sensory Neurobiology Visual Sciences Program.** This interdepartmental program will provide medical students in the elective year an opportunity for in-depth study and research in the neurobiology and structural correlates of sensory systems as



they relate to their function in health and disease. The major emphasis of the program will be on the major sensory systems, with emphasis on olfaction, taste and vision. In this study program emphasis will be placed on the development of a plan of independent study based on a direct association of each student with an individual member of the program faculty in a tutorial or research setting.

Each student will select a faculty preceptor in consultation with the program directors. He/she will also design an appropriate study plan which may include but not be limited to courses offered within this study program. For guidance, a list of courses which are relevant to this program is given below. As applicable, students participating in this study program will meet as a group for discussions and presentation of seminars which will also involve participation by members of the program faculty and invited guest lecturers on subjects of interest to the entire group. A student will normally spend two terms in the program and receive full credit for the basic science elective requirement. Although the program will begin in September, its structure will be made flexible to accommodate those who may wish to begin in any term, including the summer term.

Students in this program will participate in the following components:

1. *Individual Tutorials.* Under the supervision of one or more members of the program faculty and upon consultation and approval by the program directors, students will participate in an individual tutorial experience. This will generally involve but need not be limited to laboratory research in a particular area of sensory physiology or visual sciences. Students are encouraged to complete their tutorial arrangements before entering the program. To facilitate this process the program directors will direct the students to the appropriate members of the program faculty or other members of the medical school faculty whose research interest would permit them to participate in this program.
2. *Lecture Courses.* Specific course offerings in this program are indicated below. In order to provide additional breadth to their preclinical experience students are encouraged to take up to four units of coursework per term. As noted earlier, courses that may be taken by students need not be limited to those related to sensory physiology or visual sciences but consultation and approval by the program directors is required before making final selections.

Basic science electives: PHS-225(B) Neurobiology of sensory systems; PHS-286(B) Electron microscopy and related techniques; CFM-215(B) Biostatistics in the medical sciences; PTH-231(B) Ophthalmic pathology; PHS-270(B) Neurobiology; PHS-272(B) Physiology of the central nervous system.

Participating faculty: Robert R. H. Anholt, Ph.D.; Joseph M. Corless, M.D., Ph.D.; Robert P. Erickson, Ph.D.; Diane L. Hatchell, Ph.D.; Gordon Klintworth, M.D., Ph.D.; Alan D. Proia, M.D., Ph.D.; and Sidney A. Simon, Ph.D.

Program Directors: Drs. Sidney A. Simon and Diane L. Hatchell

## ROSTER OF HOUSE STAFF BY DEPARTMENTS

### Anesthesiology

Chief Resident (January-June 1989): Joseph Lu, M.D. (Minnesota, 1980).

Senior Residents: Jonathan Aarons, M.D. (Maryland, 1986); William Buhrman, M.D. (Duke, 1983); Christopher Cary, M.D. (Massachusetts, 1985); Christopher Caswell, M.D. (Temple, 1985); Norman A. Cohen, M.D. (Johns Hopkins, 1985); Dennis Doherty, D.O. (New Jersey, 1985); Maureen Doherty, D.O. (New Jersey, 1985); Jeffrey Fassero, M.D. (Southern Illinois, 1986); Thomas Fawcett, M.D. (Duke, 1986); Caroline Fife, M.D. (Texas A&M, 1984); Daniel Graubert, M.D. (New York Univ, 1985); Lewis Hodgins, M.D. (Downstate Med. Coll., 1985); Caroline Lu, M.D. (University of Melbourne, 1985); Burt McKenzie, M.D. (North Carolina at Chapel Hill, 1985); Anthony Meluch, M.D. (Indiana, 1986); Mark Newman, M.D. (Louisville, 1985); Armando Roces, M.D. (University of Saragoosa Fac, Spain, 1984); Debra Schwinn, M.D. (Stanford, 1983); Nicholas Tangreti, M.D. (New Jersey, 1983); Ramon Toscano, M.D. (New Jersey, 1985); Timothy Vanderslice, M.D. (Louisiana State, 1983); Charles Veronee, M.D. (Duke, 1985); Che-ming Yang, M.D. (Miami, 1986); Richard Yevak, M.D. (Temple, 1986).

Junior Residents: Stephen Dainesi, M.D. (Mt. Sinai, 1987); Patrick Dono, M.D. (George Washington, 1987); David Geduld, M.D. (Miami, 1987); Edward Kowlowitz, M.D. (New York Med. Coll. 1987); Frederick Newcomb, M.D. (Duke, 1987); Michael O'Grady, M.D. (Ohio State, 1987); Ann Pflugrath, M.D. (Southwestern, 1987); Mark Ramirez, M.D. (Utah, 1981); Thomas Slaughter, M.D. (Duke, 1987); Robert Sorensen, M.D. (Utah, 1987); Craig Steiner, M.D. (Pittsburgh, 1987); David Theil, M.D. (Indiana, 1983); Ashfaq Uraizee, M.D. (Duke, 1987); Deryl Warner, M.D. (Duke, 1987); Daniel Yousif, M.D. (Rush, 1987).

### Family Medicine

Chief Resident: Elisabeth B. Nadler, M.D. (New York Univ., 1985).

Residents: Samuel D. Blackwell, M.D. (Florida, 1987); W. Kevin Broyles, M.D. (Florida, 1986); Joseph W. Bruckert, M.D. (Dusseldorf, Germany, 1982); Nanci A. Cherry, M.D. (Michigan State, 1988); Sandra A. Cromo, M.D. (Jefferson, 1987); Brenda P. Crownover, M.D. (Duke, 1988); A. Mark Durand, M.D. (Vanderbilt, 1982); Robert L. Ferrer, M.D. (Hahnemann, 1986); Michael P. Flanagan, M.D. (Maryland, 1987); Elizabeth S. Grace, M.D. (New York at Syracuse, 1987); Stephen W. Grandstaff, M.D. (Michigan State, 1988); Janet L. Hader, M.D. (Missouri, 1987); Theodor T. Herwig, M.D. (Cincinnati, 1987); Craig A. Hoffmeier, M.D. (Louisiana, 1986); Richard G. Juberg, M.D. (North Carolina at Greenville, 1982); William Jurgelsky, M.D. (Duke, 1967); Eugenie M. Komives, M.D. (Harvard, 1985); Steven M. Lackey, M.D. (Missouri, 1984); Thomas E. Lynn, M.D. (Georgetown, 1987); Stephen J. Lurie, M.D. (Bowman Gray, 1988); Rhonda J. Matteson, M.D. (Cincinnati, 1988); Miki B. Moy, M.D. (Pennsylvania, 1987); Anita P. Oates, M.D. (St. George's Hospital Med. School, London, 1983); David R. Peter, M.D. (Rochester, 1988); Ronald A. Pollack, M.D. (Med. Coll. of Virginia, 1986); Diane C. Roden, M.D. (Missouri, 1987); Diane C. Roden, M.D. (Missouri, 1987); Charles A. Ross, M.D. (North Carolina at Chapel Hill, 1987); John R. Sellett, M.D. (Southern Illinois, 1987); Daniel J. Shamburek, M.D. (Med. Coll. of Virginia, 1986); Loretta G. Sutphin, M.D. (Duke, 1986); Gowrie A. Ventimiglia, M.D. (North Carolina at Chapel Hill, 1988); Kim M. Walsh, M.D. (Duke, 1988); Mae Millicent Winfrey, M.D. (Washington Univ., 1988).

Fellows: Paul W. Misch, M.D. (Michigan State, 1981); Mark W. Woodruff, M.D. (Tufts, 1985); Kimberly S. Yarnall, M.D. (Florida, 1985).

### Medicine

Chief Residents: James F. Daubert, M.D. (Thomas Jefferson, 1984); Paul A. Gurbel, M.D. (Maryland, 1983).

Senior Assistant Residents: Harry R. Aldrich, M.D. (Duke, 1986); Polly A. Beere, M.D. (Chicago, 1986); Michael S. Berkoben, M.D. (Pennsylvania, 1986); Carl A. Blau, M.D. (Ohio State, 1986); Stephen P. Caminiti, M.D. (New York Univ., 1986); David E. Chambers, M.D. (South Alabama, 1986); Ian Christoph, M.D. (Washington Univ., 1986); Douglas L. Cotsamire, M.D. (Ohio State, 1986); Raymond S. Cuevo, M.D. (Yale, 1986); Stephen C. Culp, M.D. (Vermont, 1986); Gary K. DeWeese, M.D. (Duke, 1986); Leslie J. Domalik, M.D. (Pittsburgh, 1986); Daniel D. Dulas, M.D. (Minnesota, 1986); Kenneth A. Fath, M.D. (Ohio State, 1986); Julie K. Fetters, M.D. (Ohio State, 1986); Terry L. Forrest, M.D. (Indiana Univ., 1986); Lawrence K. Gates, M.D. (Duke, 1986); Lisa A. Gianetto, M.D. (Loyola Stritch, 1986); Steven A. Guarisco, M.D. (Louisiana, 1986); Paul G. Harvill, M.D. (Duke, 1986); James G. Jollis, M.D. (Ohio State, 1986); John A. Kallianos, M.D. (Duke, 1986); Shelia A. Kim, M.D. (Pittsburgh, 1986); Daniel W. Koenig, M.D. (Duke, 1986); Sarah S. Kratz, M.D. (North Carolina at Chapel Hill, 1984); Arnold Louie, M.D. (Albany Med. Coll., 1986); James M. McGill, M.D. (Ohio State, 1986); Robert A. Muggia, M.D. (Tufts, 1986); Carolyn M. Mulroney, M.D. (Johns Hopkins, 1986); Alexander Paraschos, M.D. (Med. Coll. of Virginia, 1986); Robert C. Pennington, M.D. (North Carolina at Chapel Hill, 1986); Andrew W. Pippas, M.D. (Utah, 1986); Robert E. Pryor, M.D. (Baylor, 1986); Steven G. Simonson, M.D. (Med. Coll. of Pennsylvania, 1986); Nicholas D. Snow, M.D. (Ohio State, 1985); Jeremy Sugarman, M.D. (Duke, 1986); Keith R. Superdock, M.D. (Jefferson, 1986); Paul R. Vom Eigen, M.D. (Vermont, 1986); John W. Wassenaar, M.D. (Florida, 1985); Karen E. Welty-Wolf, M.D. (Duke, 1986); Robert A. Wolff, M.D. (Albany, 1986); Darryl C. Zeldin, M.D. (Indiana Univ., 1986); William J. Zimmer, M.D. (Med. Coll. of Wisconsin, 1986).

Junior Assistant Residents: Harry R. Aldrich, M.D. (Duke, 1986); Lee F. Allen, M.D. (New Jersey, 1987); Lori A. Bastian, M.D. (Emory, 1987); Gerold Bepler, M.D. (Philipps Univ., Germany, 1983); David W. Butterly, M.D.

(Duke, 1987); Kwan-Sian Chen, M.D. (National Taiwan Univ., 1982); Ronald E. Cirullo, M.D. (California at Irvine, 1987); Jack E. Cokler, M.D. (Loyola, 1987); Richard L. Converse, M.D. (Johns Hopkins, 1987); Randolph A. Cooper, M.D. (Duke, 1987); Tina D. Covington, M.D. (Howard, 1987); Sharon R. Cumbee, M.D. (Duke, 1987); A. Gregory Deam, M.D. (Ohio State, 1987); David D. DeAtkine, M.D. (Southwestern, 1987); J. Michael DiMaio, M.D. (Miami, 1987); Dennis C. Dobyen, M.D. (Texas at Galveston, 1987); Jonathan C. Fox, M.D. (Chicago, 1987); Steve N. Georas, M.D. (Brown, 1987); Holli A. Hamilton, M.D. (New York Univ., 1987); Douglas L. Hill, M.D. (Vanderbilt, 1987); H. Scott Howell, M.D. (Ohio State, 1987); Kathleen C. Howell, M.D. (Ohio State, 1987); Andrew J. Kaplan, M.D. (Southwestern, 1987); Eugene C. Kovalik, M.D. (McGill, 1987); David F. Lobach, M.D. (Duke, 1987); Gustav C. Magrinat, M.D. (North Carolina at Chapel Hill, 1987); Diane M. Metzler, M.D. (Minnesota, 1987); Paul L. Mulhausen, M.D. (Minnesota, 1987); L. Kristin Newby, M.D. (Indiana, 1987); Jane E. Onken, M.D. (George Washington, 1987); Leslie J. Parent, M.D. (Duke, 1987); Jonathan L. Riegler, M.D. (Michigan, 1987); Spencer I. Rozin, M.D. (Oklahoma, 1987); Gordon D. Rubenfeld, M.D. (Jefferson, 1987); Aneysa C. Sane, M.D. (Duke, 1987); James K. Schwarz, M.D. (Duke, 1987); Kathryn Schwarzenberger, M.D. (Texas at Galveston, 1987); Daniel P. Seward, M.D. (Wayne State, 1987); Ala I. Shararah, M.D. (American Univ. of Beirut, 1987); Steve L. Shilling, M.D. (Southwestern, 1987); Lynn M. Shimabukuro, M.D. (Eastern Virginia, 1982); Edward F. Terrien, M.D. (Vermont, 1987); Dennis M. Unks, M.D. (Pittsburgh, 1987); Dennis M. Walling, M.D. (Johns Hopkins, 1987); Ilene D. Weintraub, M.D. (Pittsburgh, 1987); Wynne E. Woodyear, M.D. (West Virginia, 1987); Daniel A. Yohay, M.D. (Duke, 1987).

**Interns:** Brian A. Armstrong, M.D. (Washington Univ., 1988); Bryan N. Becker, M.D. (Kansas, 1988); David Brodeur, M.D. (Duke, 1988); Melinda L. Brown, M.D. (South Carolina, 1988); Lisa K. Cairns, M.D. (Yale, 1988); Julia H. Cohen, M.D. (Univ. of Trecht, 1988); David B. Corry, M.D. (Texas Southwestern, 1988); Katie C. Cowan, M.D. (Texas at San Antonio, 1988); Robert S. DiPaola, M.D. (Utah, 1988); Carola A. Essom-Sherrier, M.D. (Bowman Gray, 1988); David W. Gazier, M.D. (Duke, 1988); Bradley D. Breeman, M.D. (Duke, 1988); Susan C. Galbraith, M.D. (Ohio State, 1988); Paula Y. George, M.D. (Kansas, 1988); Helen L. Goldberg, M.D. (Med. Coll. of Pennsylvania, 1988); Samuel E. Green, M.D. (Albany, 1987); Stuart A. Green, M.D. (Tennessee, 1988); David C. Habel, M.D. (North Carolina at Chapel Hill, 1988); William R. Hathaway, M.D. (Wisconsin, 1988); Russell E. Hillsley, M.D. (Washington, 1988); Souha S. Kanj, M.D. (Beirut, 1987); Stephen P. Kantrow, M.D. (Louisiana State, 1988); Susan S. Kim-Foley, M.D. (Vermont, 1988); Laurie H. Kuwashima, M.D. (Johns Hopkins, 1988); Kimberly Landay, M.D. (Duke, 1988); Mary J. Laughlin, M.D. (New York at Buffalo, 1988); Carolyn W. Lu, M.D. (Melbourne, Australia, 1985); Allen W. Mangel, M.D. (Georgetown, 1988); Bruce N. Mayes, M.D. (Vanderbilt, 1988); Bobby R. Maynor, M.D. (Duke, 1988); Barbara E. Menzies, M.D. (Vanderbilt, 1988); Robert J. Morrison, M.D. (Texas Southwestern, 1988); William S. Panza, M.D. (Duke, 1988); John N. Perry, M.D. (Pittsburgh, 1988); James M. Principe, M.D. (New Jersey, 1988); Norbertus C. Robben, M.D. (Univ. of Trecht, 1988); Sharona Sachs, M.D. (New York at Buffalo, 1988); Howard H. Schertzinger, M.D. (Ohio State, 1988); Paul J. Shami, M.D. (Beirut, 1988); Robert B. Stewart, M.D. (Washington, 1988); Bryant W. Stolp, M.D. (North Carolina at Chapel Hill, 1988); Bradley P. Stoner, M.D. (Indiana, 1988); Kelly A. Switzer-Timmons, M.D. (Robert Wood Johnson, 1988); Byron P. Thompson, M.D. (Emory, 1988); Michael L. Towns, M.D. (Emory, 1988); Charles R. Wolfe, M.D. (Temple, 1988); Kenneth M. Zabel, M.D. (Washington, 1988).

**Fellows:** John Affronti, M.D. (George Washington, 1985); Frank J. Albers, M.D. (Cincinnati, 1984); Brian H. Annex, M.D. (Yale, 1985); William W. Barrington, M.D. (Ohio State, 1983); Joseph T. Beck, M.D. (Arkansas, 1985); William L. Bell, M.D. (Bowman Gray, 1977); Roslyn Bernstein, M.D. (Duke, 1985); Jonathan J. Berry, M.D. (Pennsylvania, 1983); Kristie Bobolis, M.D. (California at Irvine, 1985); David S. Borislav, M.D. (Johns Hopkins, 1983); Malcolm Branch, M.D. (Med. Coll. of Georgia, 1984); Stephen J. Brandt, M.D. (Emory, 1981); Steven D. Brown, M.D. (Texas, 1983); A. Gray Bullard, M.D. (North Carolina at Chapel Hill, 1985); Miriam L. Cameron, M.D. (Bowman Gray, 1984); Paul T. Campbell, M.D. (Temple, 1985); David B. Carr, M.D. (Missouri, 1985); Peter W. Carter, M.D. (Tennessee, 1983); J. Peter Cegielski, M.D. (California at San Diego, 1984); David M. Chalikian, M.D. (Pennsylvania, 1984); Nelson T. Chao, M.D. (Far Eastern Univ., 1982); Gregory D. Chapman, M.D. (Alabama, 1985); Ambrose A-P Chiang, M.D. (Taipei Medical College, 1981); Deirdre M. Collins, M.D. (Thomas Jefferson, 1984); Larry D. Cripe, M.D. (Rush, 1984); Toni Cutson, M.D. (Virginia, 1980); Brett C. Davis, M.D. (Arkansas, 1984); Carlos M. deCastro, M.D. (Texas Southwestern, 1985); Margaret A. Deutsch, M.D. (Wisconsin, 1984); Mary A. Dooley, M.D. (North Carolina at Chapel Hill, 1983); Carol S. Dukes, M.D. (Utah, 1985); Cynthia B. Dunham, M.D. (North Carolina at Chapel Hill, 1985); Michael J. Econs, M.D. (California at San Francisco, 1983); Peter G. Ellis, M.D. (Pittsburgh, 1985); David M. Ellison, M.D. (Duke, 1984); John P. Floyd, M.D. (Mississippi, 1977); Donald F. Fortin, M.D. (Massachusetts, 1984); David J. Frid, M.D. (Maryland, 1984); Roger S. Gammon, M.D. (Missouri, 1984); Frederick M. Gessner, M.D. (Maryland, 1985); Gary S. Gilkeson, M.D. (Southwestern, 1979); Michael J. Glantz, M.D. (Brown, 1984); Bruce J. Gould, M.D. (Jefferson, 1983); Christopher B. Granger, M.D. (Connecticut, 1984); Ruth Ann Greenfield, M.D. (Duke, 1985); Jack A. Griebel, M.D. (Arkansas, 1983); Michael B. Harding, M.D. (Vanderbilt, 1985); David M. Harlan, M.D. (Duke, 1980); J. Kevin Harrison, M.D. (New York, 1984); Maurice E. Heard, M.D. (North Carolina at Chapel Hill, 1984); Kenneth Holmes, M.D. (Chicago, 1984); Michael B. Honan, M.D. (Alabama, 1983); Yuh-Chin Huang, M.D. (National Taiwan Univ., 1983); Christopher W. Ingram, M.D. (Bowman Gray, 1983); Mary R. Jacobs, M.D. (Illinois, 1985); Jan A. Janson, M.D. (New York Univ., 1984); Peter A. Kaufman, M.D. (New York Univ., 1983); W. Ransom Kilgore, M.D. (Oklahoma, 1984); Jerome H. Kim, M.D. (Yale, 1984); Stephen Kingsmore, M.D. (The Queen's University of Belfast, 1979); M. Sue Kirkman, M.D. (North Carolina at Chapel Hill, 1982); Delane W. Kitzman, M.D. (Johns Hopkins, 1984); Harold G. Koenig, M.D. (California at San Francisco, 1982); Virginia B. Kraus, M.D. (Duke, 1982); William E. Kraus, M.D. (Duke, 1982); William D. Kuehl, M.D. (Iowa, 1983); Peter S. Kussin, M.D. (Mt. Sinai, 1985); Michael B. Lambert, M.D. (Oklahoma, 1985); Mark E. Leithe, M.D. (Ohio State, 1984); J. Peter Longabaugh, M.D. (Pittsburgh, 1982); Conor Lundergan, M.D. (Georgetown, 1982); John F. Mahoney, M.D. (Pittsburgh, 1984); Peter J. Mannon, M.D.

(Boston, 1983); Diana B. McNeill, M.D. (Duke, 1982); John P. Middleton, M.D. (Virginia, 1983); Michael J. Miller, M.D. (Pittsburgh, 1985); David R. Mitchell, M.D. (Pittsburgh, 1984); Joseph S. Moss, M.D. (Ohio State, 1984); J. Brent Muhlestein, M.D. (Utah, 1984); Frank I. Navetta, M.D. (New York Med. Coll., 1984); Lina-Marie Obeid, M.D. (American Univ. of Beirut, 1983); Christopher O'Connor, M.D. (Maryland, 1983); E. Magnus Ohman, M.D. (St. Lawrence Hospital, 1981); Thomas L. Ortel, M.D. (Indiana, 1985); Richard L. Page, M.D. (Duke, 1984); Timothy J. Panella, M.D. (Tennessee, 1983); Yong D. Park, M.D. (Yonsei, 1976); Kevin R. Porter, M.D. (Duke, 1983); Albert T. Quiery, M.D. (Albert Einstein, 1984); Kenneth B. Roberts, M.D. (Duke, 1984); Cheryl R. Robertson, M.D. (Kentucky, 1985); Maureen Ross, M.D. (Miami, 1984); Michael L. Russell, M.D. (North Carolina at Chapel Hill, 1985); Michael R. Saitta, M.D. (Johns Hopkins, 1984); David C. Sane, M.D. (Duke, 1983); Ralph M. Schapira, M.D. (Southwestern, 1984); Sunil Shaunak, M.D. (Saint George, 1982); Evelyn Shearer-Poor, M.D. (Eastern Virginia, 1984); Ashfaq Shuaib, M.D. (Khyber, 1980); Michael H. Sketch, M.D. (Creighton, 1984); Jack E. Smith, M.D. (Hahnemann, 1984); Stephen R. Smith, M.D. (Duke, 1985); Robert A. Sorrentino, M.D. (Albany, 1985); Robert F. Spurney, M.D. (Ohio, 1983); Hal T. Stoneking, M.D. (Kentucky, 1983); Alan C. Street, M.D. (Univ. of Melbourne, 1980); Anthony S. Tang, M.D. (Univ. of Toronto, 1977); Brian M. Tedman, M.D. (Nottingham, 1979); Alan N. Tenaglia, M.D. (Washington, 1985); Anne Toohey, M.D. (Nebraska, 1977); Thomas F. Trahey, M.D. (Bowman Gray, 1984); Raymond N. Vitullo, M.D. (Tufts, 1985); Michael M. Ward, M.D. (Illinois, 1983); Carl V. Washington, M.D. (Michigan, 1984); Jacqueline M. Washington, M.D. (Michigan, 1984); Franklin C. Wefald, M.D. (Johns Hopkins, 1985); Debra K. Weiner, M.D. (Missouri, 1983); Henry L. Weiner, M.D. (Yale, 1983); David C. Whitcomb, M.D. (Ohio, 1985); Eric P. Winer, M.D. (Yale, 1983); Alan H. Wiseman, M.D. (McGill, 1984); Paul Yudelman, M.D. (London, 1984).

## DIVISION OF DERMATOLOGY

Kim G. Abson, M.D. (Washington State, 1986); Lisa A. Beck, M.D. (New York at Stony Brook, 1985); Daniel Berg, M.D. (Toronto, 1985); Fredric Blum, M.D. (New York Univ., 1985); Robert E. Clark, M.D. (Southwestern, 1985); Ira C. Davis, M.D. (New York Univ., 1986); Mark Koone, M.D. (Baylor, 1986); Cynthia L. Reitz, M.D. (Louisiana, 1985); David H. Weingold, M.D. (Yale, 1987).

## DIVISION OF NEUROLOGY

James R. Burke, M.D. (New York-Downstate, 1985); J. Thaddeus Coin, M.D. (Duke, 1984); Lee P. Dresser, M.D. (Bowman Gray, 1987); Randall F. Hawkins, M.D. (Marshall, 1987); Peter King, M.D. (Duke, 1985); Kathleen L. Klotz, M.D. (Boston, 1987); Dennis L. Kolson, M.D. (Pittsburgh, 1985); Eun-Kyu Lee, M.D. (Maryland, 1986); Lorraine J. Loprest, M.D. (Thomas Jefferson, 1986); Joel C. Morgenlander, M.D. (Pittsburgh, 1986); Steven S. Rosenfeld, M.D. (Northwestern, 1985); Richard W. Tim, M.D. (California at San Diego, 1986).

## Obstetrics and Gynecology

Chief Residents: James Allen, M.D. (Rutgers, 1982); Grace Couchman, M.D. (Colorado, 1985); Gerianne Geszler, M.D. (Duke, 1985); Susan Jenkins, M.D. (Duke, 1985); L. Stewart Massad, M.D. (Duke, 1984); Kathy Santoriello, M.D. (Duke, 1984).

Assistant Residents: James Alexander, M.D., Ph.D. (Southern Illinois Univ., 1987); Alexander D. Babich, M.D., Ph.D. (Cornell, 1988); Deborah Bart, M.D. (Univ. of Iowa, 1987); Jodell Boyle, M.D. (Duke, 1987); William Cliby, M.D. (Univ. of Vermont, 1987); Margaret Dahmus, M.D. (Pennsylvania State, 1982); Kevin Haim, M.D. (Duke, 1988); Clemens M. Grosskinsky, M.D., Ph.D. (New York-Downstate Medical Center, 1988); Lydia Jeffries, M.D. (Iowa, 1986); Matthew F. Kohler, M.D. (Duke, 1987); Kathryn Lohr, M.D. (Kentucky, 1986); Paul C. Margarelli, M.D., Ph.D. (Arizona, 1988); Carla Morgan, M.D. (North Carolina at Greenville, 1987); Evan R. Myers, M.D. (Pennsylvania, 1988); Michael Stellar, M.D. (Temple, 1986); Scott J. Tyrey, M.D. (Duke, 1988); Carolyn Wilson, M.D. (Med. Coll. of Virginia, 1987).

## Ophthalmology

Chief Resident: Cynthia Hampton, M.D. (Texas at Houston, 1985).

Residents: Bryan E. Alff, M.D. (Duke, 1987); Bruce J. Ballon, M.D. (Virginia, 1988); Karen Gehrs, M.D. (Missouri, 1987); Heather Heath, M.D. (Florida, 1987); Raymond E. Hubbe, M.D. (Massachusetts, 1988); Lee A. Klombers, M.D. (Pittsburgh, 1986); Laurie H. Kuwashima, M.D. (Johns Hopkins, 1986); John F. Murchison, M.D. (Tennessee, 1986); Stuart W. Noorily, M.D. (Boston, 1988); Jenny Petitto, M.D. (North Carolina at Chapel Hill, 1987); Bruce E. Prum, Jr., M.D. (Dartmouth, 1988); Ruthanne Simmons, M.D. (Harvard, 1987); Frederick S. Sutherland, M.D. (Duke, 1986); Martha C. Wilson, M.D. (Louisville, 1986); Jeffrey J. Zuravleff, M.D. (Pittsburgh, 1986).

## Pathology

Residents: Sebastian Alston, M.D., (North Carolina at Chapel Hill, 1985); Timothy Benning, M.D. (Rochester, 1985); Rex Bentley, M.D. (Harvard Medical School, 1986); Peter F. Bernhardt, M.D. (Duke, 1986); David R. Bolick, M.D. (Duke, 1986); Alice Coogan, M.D. (Vanderbilt, 1988); Dewey L. Dean, M.D. (South Carolina, 1986);

Gregory N. Fuller, M.D. (Baylor, 1987), Ph.D. (Texas, 1983); Julian Garcia, M.D. (Miami, 1988); Brent Hall, M.D. (North Carolina at Greenville, 1988); Russell Hjelmstad, M.D. (Duke, 1988); Frank Honkanen, M.D. (Georgia, 1986); Christine Hulette, M.D. (Louisville, 1983); James McDonald, M.D. (George Washington, 1982); Karen Mann, M.D. (Tufts, 1988); Roger Mennillo, M.D. (Duke, 1988); Nathan Pulkingham, M.D. (North Carolina at Greenville, 1988); Shrin Rajagopalan, M.D. (Duke, 1987), Ph.D. (Duke, 1986); Daniel H. Thomae, M.D. (Wisconsin, 1984); Anne Marie Vandersteenhoven, M.D. (South Carolina, 1987), Ph.D. (South Carolina, 1982, 1987); Jay Vandersteenhoven, M.D. (South Carolina, 1987), Ph.D. (South Carolina, 1983); William Vick, M.D. (Duke, 1987); Kay Washington, M.D. (North Carolina at Chapel Hill, 1986); Helmut K. Wolf, M.D. (Maine, 1986).

Fellows: Susan Atwater-Boyd, M.D. (Duke, 1985); Osbert Blow, M.D. (Duke, 1987); Arlene Herzberg, M.D. (George Washington, 1986); John Koepke, M.D. (Iowa, 1983); Jon Lomasney, M.D. (Johns Hopkins, 1982); Peter White, M.D. (Johns Hopkins, 1983); Michael Wilson, M.D. (Colorado, 1984).

## Pediatrics

Chief Resident: Dorothy Eisenberg, M.D. (Duke, 1985).

Third Year Residents: Ghassan Dbaibo, M.D. (American Univ. Beirut, 1986); Jennifer Ferrer, M.D. (Med. Coll. of Pennsylvania, 1986); Julie Fishbein, M.D. (Maryland, 1985); Karen Frush, M.D. (Duke, 1986); Ken Jordan, M.D. (Southern Illinois, 1986); Jan Koppelman, M.D. (Maryland, 1986); Jane Scott, M.D. (Colorado, 1986); Jana Stockwell, M.D. (Southwestern at Dallas, 1986); Michael Vance, M.D. (Rochester, 1986); Dawn Vidacovich, M.D. (Baylor, 1986); Heinrich Werner, M.D. (Mainz, West Germany, 1986).

Second Year Residents: Jonathan Becker, M.D. (Washington, 1987); Chun-Peng Chao, M.D. (Far East Univ., 1982); Paul Cheng, M.D. (National Taiwan Univ., 1979); Kathleen Clarke-Pearson, M.D. (North Carolina at Chapel Hill, 1985); Mary Glasheen, M.D. (New York at Stony Brook, 1987); Sandra Hosford, M.D. (Duke, 1986); Anna Lawson, M.D. (Ohio State, 1987); Yisheng Lee, M.D. (National Taiwan Univ., 1981), Ph.D. (Duke, 1985); Leslie Lehmann, M.D. (Duke, 1985); Catherine McHugh, M.D. (New York at Stony Brook, 1987); Joan Meek, M.D. (Kentucky, 1986); Jihad Obeid, M.D. (Amer. Univ., Beirut, 1987); Ziad Saba, M.D. (Amer. Univ., Beirut, 1987).

First Year Residents: Gail Cawkwell, M.D. (McGill, 1988); Mia Doron, M.D. (Duke, 1988); Susan Hudome, M.D. (Pennsylvania State, 1988); Louis E. Jacobson, M.D. (Maryland, 1988); Amy Jibilian, M.D. (New Jersey, 1988); Paige LeMasters, M.D. (Texas at Galveston, 1988); Douglas Lewis, M.D. (Texas at Houston, 1988); Marcia Morgenlander, M.D. (Pittsburgh, 1988); Catharine Moffitt, M.D. (South Florida, 1988); Eva Nozik, M.D. (Colorado, 1988); Sarah Stitt, M.D. (Maryland, 1988); Jeffrey Toretzky, M.D. (Minnesota, 1988).

Fellows: Jeffrey Baker, M.D. (Duke, 1984); Michael Barrett, M.D. (Oregon, 1979); Carol Bruggers, M.D. (Michigan State, 1984); Rita Carlos, M.D. (Far East Univ., 1982); Joseph Cimino, M.D. (Navarra Univ., Spain, 1983); Janet Claassen, M.D. (Wisconsin, 1983); Dennis Clements, M.D. (Rochester, 1973); James Cook, M.D. (Jefferson, 1984); Jia-Huan Ding, M.D. (Henan Med. Coll., China, 1968); Ira Dunkel, M.D. (Duke, 1985); Kimberly Dunsmore, M.D. (Wisconsin, 1985); Richard England, M.D. (Indiana, 1985); John Fowlkes, M.D. (Texas at San Antonio, 1985); May Griebel, M.D. (Arkansas, 1982); Kimberly Iafolla, M.D. (Pittsburgh, 1984); Paul Israel, M.D. (North Carolina at Chapel Hill, 1984); Edward Kent, M.D. (Pittsburgh, 1983); Gregory Kirkpatrick, M.D. (Oklahoma, 1984); Naoki Kodo, M.D. (Kyoto Pref. Univ., 1977); Darryl Longee, M.D. (Arkansas, 1983); Marc Majure, M.D. (Mississippi, 1981); Paris Mansmann, M.D. (Jefferson, 1984); Mark Moncino, M.D. (Loyola, 1984); Eileen O'Keefe, M.D. (Royal Coll. of Surgeons, Ireland, 1979); John Papagiannis, M.D. (Aristotelian Univ. of Thessalonica, Greece, 1983); Catherine Pihoker, M.D. (Jefferson, 1984); Patricia Quigley, M.D. (Maryland, 1985); Eglia Rabinovich, M.D. (Southern Illinois, 1985); Karen Raines, M.D. (Bowman Gray, 1984); Emilia Rivadeneira, M.D. (Univ. Nacional de Cordoba, Argentina, 1982); Joseph Roberts, M.D. (Emory, 1981); Laura Schanberg, M.D. (Duke, 1984); Kathleen Sheerin, M.D. (Duke, 1983); Herbert Stern, M.D. (South Carolina, 1984); Kim Stine, M.D. (Kansas, 1982); Hisako Tanaka, M.D. (Hyogo Med. Coll., Japan, 1979); Yui-Lin Tang, M.D. (National Taiwan Univ., 1983); Kathryn Thraikill, M.D. (Ohio State, 1983); V. Vedanarayanan, M.D. (Jawaharlal Inst. Post-Grad. Med. Ed., India, 1978); Emmanuel Walter, M.D. (Maryland, 1983); Russell Ware, M.D. (Duke, 1983).

## Psychiatry

Chief Residents: Terry Clarke, M.D. (Case Western Reserve, 1985); Martha Davidson, M.D. (Virginia, 1985); Thomas Owens, M.D. (Louisiana, 1985); James Parker, M.D. (Alabama, 1985); Kathleen Seibel, M.D. (Minnesota, 1985).

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1988); Scott Lurie, M.D. (Duke, 1987); James McGough, M.D. (Duke, 1986); Eric Moffet, M.D. (Virginia, 1986); Louis Monty, M.D. (Sackler School of Med., Israel, 1985); Rex Moody, M.D. (North Carolina at Chapel Hill, 1987); Leann Nelson, M.D. (Texas at Houston, 1986); Ioanis Parashos, M.D. (Thessaloniki, Greece, 1983); Elizabeth Pekarek, M.D. (Kentucky, 1986); John Pritchett, M.D. (Johns Hopkins, 1988); James Pryor, M.D. (South Carolina, 1985); Deborah Ross, M.D. (Minnesota, 1987); Steven Rubin, M.D. (Southern Illinois, 1988); Johnna Russell, M.D. (New Mexico, 1976); Rose Shalom, M.D. (Harvard, 1978); Daniel Shreeve, M.D. (California at San Diego, 1984); Margaret Shugart, M.D. (Virginia, 1984); Philip Spiro, M.D. (Yale, 1983); Nancy Stebbins, M.D. (Texas at Houston, 1987); David Steffens, M.D. (Texas at Houston, 1988); Sean Stetson, M.D. (RW Johnson, 1987); Zachary Stowe, M.D. (Texas at Galveston, 1988); Suzanne Sutherland, M.D. (Michigan, 1988); Katayoun Tabrizi, M.D. (Tehran University, Iran, 1984); Ranota Thomas, M.D. (East Tennessee, 1987); Deborah Thurber, M.D., (Louisiana, 1985); Pierre Tran, M.D. (University de Franche Comte, France, 1987); John Tweed, M.D. (Duke, 1987); Clark Wang, M.D. (Duke, 1988); Mark Webb, M.D. (Tulane, 1986); Jonathan Weiner, M.D. (North Carolina at Chapel Hill, 1987); Theresa Yuschok, M.D. (Northwestern 1986); Jean Zula, M.D. (North Carolina at Chapel Hill, 1988).

## Radiology

Residents: Bradford W. Betz, M.D. (Loyola, 1987); Charles Brooks, M.D. (Washington Univ., 1987); Linda Brown, M.D. (California at San Diego, 1984); W. Kent Davis, M.D. (North Carolina at Chapel Hill, 1984); Cheryl Davison, M.D. (Michigan State, 1986); AnneAlison Deatkine, M.D. (Texas, Southwestern, 1987); Jorge F. Debatin, M.D. (Univ. of Heidelberg, Germany, 1987); Bruce Distell, M.D. (Pennsylvania, 1986); John Donna, M.D. (Virginia, 1983); Diane Edge, M.D. (Dartmouth, 1982); Gonzalo Fernandez, M.D. (Bowman Gray, 1985); David Forsberg, M.D. (Duke, 1986); Donald Frush, M.D. (Duke, 1985); R. Westwood Fuller, M.D. (Med. Coll. of Virginia, 1986); Daniel Green, M.D. (Vanderbilt, 1981); Thomas Grist, M.D. (Med. Coll. of Wisconsin, 1985); Margaret Hansen, M.D. (California at Los Angeles, 1985); Michael Hertzberg, M.D. (North Carolina at Chapel Hill, 1984); Diana Hull, M.D. (Albert Einstein, 1985); Sheryl Jordan, M.D. (North Carolina at Chapel Hill, 1985); John P. Karis, M.D. (Duke, 1987); Susan Kleeman, M.D. (Yale, 1960); Mark Kliewer, M.D. (Duke, 1985); Samuel Kneece, M.D. (Vanderbilt, 1985); Julie A. Kreager, M.D. (Duke, 1987); Andrew Ku, M.D. (Columbia, 1984); Laurie McAdams Lomasney, M.D. (Cincinnati, 1986); Jeffrey S. McClellan, M.D. (Utah, 1987); Charles McDonnell, M.D. (Johns Hopkins, 1986); John D. McKenzie, M.D. (Arizona, 1985); Michael Murray, M.D. (Duke, 1985); Ronald Newbold, M.D. (Utah, 1984); Cynthia S. Payne, M.D. (Med. Coll. of Ohio, 1980); Steven L. Primack, M.D. (Chicago-Pritzker, 1987); Randall E. Rhodes, M.D. (Pennsylvania State, 1987); Marilyn Roubidoux, M.D. (Utah, 1984); D. Eugene Sallee, M.D. (Kansas City, 1985); Robert Sherrier, M.D. (Duke, 1985); Mary Swain, M.D. (Duke, 1984); John Thompson, M.D. (Duke, 1984); Kevin A. Tribble, M.D. (Loyola, 1987); John Uglietta, M.D. (Duke, 1985); Connie Vail, M.D. (Utah, 1984); Jennifer Van Vickle, M.D. (Duke, 1986); Harlan Vingan, M.D. (New York, Down State, 1983); L. Patrick Warren, M.D. (North Carolina at Chapel Hill, 1976); Vance Watson, M.D. (Maryland, 1986); Andrew B. Weber, M.D. (Temple, 1987); Keith White, M.D. (Utah, 1985); Winston Whitney, M.D. (Duke, 1986); M. David Wiener, M.D. (New York, 1984); Helen Weist, M.D. (South Carolina, 1984); John Wrench, M.D. (California at San Diego, 1985).

## Surgery

### DIVISIONS OF GENERAL AND CARDIO-THORACIC SURGERY

Instructors and Teaching Scholars: Ralph J. Damiano, M.D. (Duke, 1980); Donald Glower, M.D. (Johns Hopkins, 1980); Richard J. Peterson, M.D. (Mayo, 1979).

Instructors and Chief Residents: Stuart J. Knechtle, M.D. (Cornell, 1982); S. Chace Lottich, M.D. (Duke, 1981); David M. Mahvi, M.D. (South Carolina, 1981); James J. Morris, M.D. (Duke, 1981); Francis S. Rotolo, M.D. (Michigan, 1981); John A. Spratt, M.D. (Washington Univ., 1980).

Research Fellows: Mark P. Anstadt, M.D. (Wright State, 1986); Gene D. Branum, M.D. (Duke, 1986); Salvador Borges-Neto, M.D. (Federal Fluminense University, Brazil, 1982); Mary J. Crowley, M.D. (Duke, 1985); Giovanni Cucchiari, M.D. (Univ. of Milan, Italy, 1983); Joseph R. Elbeery, M.D. (Georgetown, 1985); Paul J. Hendry, M.D. (University of Ottawa, 1981); Scott H. Johnson, M.D. (Duke, 1986); J. Scott Kabas, M.D. (Duke, 1985); John C. Lucke, M.D. (St. Louis Univ., 1985); Yuzuru Matsuyama, M.D. (Nippon Medical School, Japan, 1975); Martin K. O'Donohoe, M.B., B.Ch., B.A.O. (University College, Dublin, 1983); Jeffrey A. Pence, M.D. (New York Med. Coll., 1986); Mark D. Plunkett, M.D. (North Carolina at Chapel Hill, 1986); Mary A. Powers, M.D. (Unifomed Services Univ., 1984); Pinhas P. Schachter, M.D. (Hebrew University, Jerusalem, 1978); Phillip P. Shaddock, M.D. (California at Los Angeles, 1986); Douglas S. Tyler, M.D. (Dartmouth, 1985); Ronald J. Weigel, M.D. (Yale, 1986).

Senior Assistant Residents: Bert A. Bowers, M.D. (Iowa, 1982); Thomas D. Christopher, (Duke, 1982); Robin G. Cummings, M.D. (Duke, 1982); Robert D. Davis, M.D. (California at Los Angeles, 1984); Gregory P. Fontana, M.D. (California at Los Angeles, 1984); James W. Gaynor, M.D. (South Carolina, 1982); Robert C. Harland, M.D. (Duke, 1983); David H. Harpole, M.D. (Virginia, 1984); Michael E. Jessen, M.D. (University of Manitoba, 1981); H. Kim Lyleryly, M.D. (California at Los Angeles, 1983); George W. Maier, M.D. (Duke, 1982); Raymond G. Makhouh, M.D. (Chicago, 1982); Charles E. Murphy, M.D. (Duke, 1982); Robert L. Quigley, M.D. (University of Toronto, 1982); Michael A. Skinner, M.D. (Rush, 1984); Craig L. Slingluff, M.D. (Virginia, 1984); Christopher R. Watters, M.D. (Michigan, 1983).

Assistant Residents: Brett C. Barnes, M.D. (Baylor, 1987); Margaret S. Cheng, M.D. (Duke, 1987); Andrew Coundouriotis, M.D. (Duke, 1987); Thomas A. D'Amico, M.D. (Columbia, 1987); Andrew M. Davidoff, M.D. (Pennsylvania, 1987); Samuel S. Fleming, M.D. (Med. Coll. of Georgia, 1987); Stanley S. Gall, Jr., M.D. (Duke, 1987); Langdon A. Hartsock, M.D. (Duke, 1987); Allan D. Kirk, M.D. (Duke, 1987); Claude T. Moorman III, M.D. (Cincinnati, 1987); George L. Murrell, M.D. (Georgetown, 1987); Scott K. Pruitt, M.D. (Columbia, 1987); Cemil M. Purut, M.D. (Duke, 1987); James E. Saunders, M.D. (Oklahoma, 1987); Thomas A. Schroeter, M.D. (Bowman Gray, 1987); Lewis B. Schwartz, M.D. (Chicago, 1987); Mark W. Sebastian, M.D. (Rush, 1987); Steven C. Winters, M.D. (New Jersey, 1987); Paul R. Young, M.D. (Connecticut, 1987).

First Year Residents: Paul M. Ahearne, M.D. (Duke, 1988); Deanna M. Boyette, M.D. (East Carolina, 1988); Philip G. Coogan, M.D. (Vanderbilt, 1988); Richard M. Foltz, M.D. (Texas Tech. Univ. Health Sciences Center, 1988); Sara J. Gaskill, M.D. (Univ. of Texas, Health Sciences Center, 1988); George K. Ibrahim, M.D. (Duke, 1988); Scott R. Jacobson, M.D. (California at Los Angeles, 1988); Robert L. Kimber, M.D. (Emory, 1988); Philip J. Kregor, M.D. (Vanderbilt, 1988); Daniel D. Lahr, M.D. (Hahnemann, 1988); Robert E. Lins, M.D. (Michigan, 1988); James R. Mault, M.D. (Michigan, 1988); Cary H. Meyers, M.D. (Chicago-Pritzker, 1988); David W. Molter, M.D. (Duke, 1988); Patrick J. Padilla, M.D. (California at Los Angeles, 1988); Luis M. Perez, M.D. (Albert Einstein, 1988); David S. Peterseim, M.D. (Washington Univ., 1988); David E. Post, M.D. (Tulane, 1988); Albert Ruenes, M.D. (Columbia, 1988); Robert Shumway, M.D. (Arizona, 1988); Mark Tedder, M.D. (Duke, 1988); John S. Wiener, M.D. (Tulane, 1988).

#### DIVISION OF NEUROSURGERY

Instructors and Chief Residents: Charles Rawlings III, M.D. (Duke, 1982); Steven Schiff, M.D. (Duke, 1980).

Assistant Residents: Estrada Bernard, M.D. (Duke, 1983); Amr O. El-Naggar, M.D. (Ain Shams University Hospital, Egypt, 1978); Herbert E. Fuchs, M.D. (Duke, 1984); Carter S. Harsh, M.D. (Alabama, 1985); Diane L. Kraemer, M.D. (Boston, 1986); Christopher Paramore, M.D. (Duke, 1987); Eugene Rossitch, Jr., M.D. (Duke, 1985); Jon M. Silver, M.D. (Duke, 1986); Daryl Warder, M.D. (Johns Hopkins, 1987); Jacob N. Young, M.D. (Duke, 1986).

#### DIVISION OF ORAL SURGERY

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Assistant Residents: James M. Boyle, D.D.S. (Northwestern, 1983); Thomas S. McGraw, D.D.S. (Pennsylvania, 1985); Michael J. Zak, D.D.S. (Illinois, 1987).

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Assistant Residents: James K. Aymond, M.D. (Louisiana State, 1986); Howard R. Brown, M.D. (California, 1984); Joseph H. Calandra, M.D. (New York Med. Coll., 1982); Angelo J. Colosimo, M.D. (New York, 1984); Jean C. Evans, M.D. (Albany, 1981); Herbert S. Gates III, M.D. (Virginia, 1985); Sandra E. Glasson, M.D. (Duke, 1986); William J. Gray III, M.D. (Uniformed Services Univ., 1983); James F. Holtzclaw, M.D. (Emory, 1986); John S. Kirkpatrick, M.D. (Bowman Gray, 1985); Tally E. Lassiter, Jr., M.D. (Harvard, 1982); William J. Mallon, M.D. (Duke, 1984); David H. McCord, M.D. (Cornell, 1984); Michael J. McNamara, M.D. (Duke, 1984); Raymond R. Monto, M.D. (New York, 1986); William J. Murzic, M.D. (Tufts, 1984); J. Jeffrey Poggi, M.D. (Rochester, 1986); Steven C. Poletti, M.D. (California at Irvine, 1985); Michael J. Sandow, M.D. (Flinders University, South Australia, 1979); Sean P. Scully, M.D. (Rochester, 1986); Mark B. Silbey, M.D. (Columbia, 1985); Thomas C. Spangler, M.D. (North Carolina at Chapel Hill, 1984); Kevin P. Speer, M.D. (Johns Hopkins, 1985); John S. Taras, M.D. (Michigan, 1982); Dean C. Taylor, M.D. (Duke, 1985); Mario Turi, M.D. (East Carolina, 1984); Thomas P. Vail, M.D. (Loyola, 1985); Erich W. Wouters, M.D. (Alabama, 1985).

#### DIVISION OF OTOLARYNGOLOGY

Instructors and Chief Residents: Ray H. Cameron, M.D. (Wisconsin, 1984); Thomas E. Jordan, M.D. (Maryland, 1984); Douglas J. Wermuth, M.D. (Wisconsin, 1984).

Assistant Residents: Paul A. Abson, M.D. (Washington, 1986); Robert K. Dyer, Jr., M.D. (Bowman Gray, 1986); David Hoyt, M.D. (Duke, 1986); Peter T. Janicki, M.D. (Baylor, 1986); Anthony E. Magit, M.D. (California at San Diego, 1985); Christopher E. Newman, M.D. (Bowman Gray, 1984); Jon F. Strohmeier, M.D. (Louisiana, 1985).

#### DIVISION OF PLASTIC AND MAXILLOFACIAL SURGERY

Instructors and Chief Residents: Scott Brenman, M.D. (Jefferson, 1981); Christopher Demas, M.D. (Cincinnati, 1981); Edward Eades, M.D. (Texas at Houston, 1981); Joel Pessa, M.D. (Massachusetts, 1980).

Assistant Residents: William C. Brown, M.D.C.M. (McGill University Fac. of Med., Montreal, Quebec, 1983); Michael Clinton, M.D. (Alabama, 1982); Jay A. Goldberg, M.D. (Pittsburgh, 1982); Scott Levin, M.D. (Temple, 1982); Richard Rizzuti, M.D. (East Carolina, 1983); Jonathan Schuster, M.D. (Pittsburgh, 1982).

Research Fellow: Kyung W. Minn, M.D. (Seoul National Univ., Korea, 1980).

#### DIVISION OF UROLOGY

Instructors and Chief Residents: John Danneberger, M.D. (Pittsburgh, 1982); Robert P. Fleischer, M.D. (Duke, 1982); Bruce E. Woodworth, M.D. (East Tennessee, 1983).

Assistant Residents: Niall J. Buckley, M.B., B.Ch. (University College, Dublin, 1979); Sam M. Currin, M.D. (South Carolina, 1984); Andy K. Das, M.D. (Northwestern, 1984); Steven C. Flashner, M.D. (Jefferson, 1982); James A. Flatt, M.D. (Vanderbilt, 1985); Paul A. Hatcher, M.D. (Duke, 1983); Ronald P. Kaufman, M.D. (George Washington, 1983); Jane E. Lacey, M.D. (Uniformed Services Univ., 1984); Nancy A. Little, M.D. (Jefferson, 1983).

Research Fellows: Jonathan T. Donaldson, M.D. (Boston, 1986); Thomas E. Keane, M.D. (Johns Hopkins, 1986); John A. Mekras, M.D. (Miami, 1986); Judd Moul, M.D. (Jefferson, 1982).





## Class of 1989

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Allen, Patti Jean (Colorado), Boulder, Colorado  
Alyea, Edwin P. III (Duke), Georgetown, Kentucky  
Armstrong, Michael, Jr. (Princeton), Richmond, Virginia  
Barbano, Edward F., Jr. (Duke), Kensington, Maryland  
Barboriak, Peter N. (Marquette), Wood, Wisconsin  
Beatty, Peter T. (Harvard), Durham, North Carolina  
Becker, Kyra J. (Virginia Tech.), Red Lion, Pennsylvania  
Blair, Jerry Ray (Georgetown), Durham, North Carolina  
Book, Michael R. (Johns Hopkins), North Babylon, New York  
Brackett, Jeffrey C. (Duke), Athens, Georgia  
Brown, Thomas M. (Kentucky), Lexington, Kentucky  
Bryant, Randall M. (Princeton), Newport, North Carolina  
Bryce, Sarah S. (Yale), Philadelphia, Pennsylvania  
Bumgarner, John R. (Memphis State), Dallas, Texas  
Buser, Steven D. (Michigan), Lake Orion, Michigan  
Carpenter, Sarah A. (Stanford), Arvada, Colorado  
Carson, Susan L. Culp (North Carolina at Chapel Hill), Charlotte, North Carolina  
Cech, Alex C. (Yale), Bronxville, New York  
Chang, Steven C. (Tufts), Holden, Massachusetts  
Chow, Caroline C. (Duke), Alexandria, Virginia  
Collins, Bradley H. (Princeton), Greensboro, North Carolina  
Correa, Javier G. III (Campbell), Bellevue, Washington  
Crane, Charles M. (Stanford), Bellevue, Washington  
Davidson, Robert C. (Virginia), Vienna, Virginia  
Davis, Cornelius A. (North Carolina at Chapel Hill), Winston-Salem, North Carolina  
Dockery, Stephen E. (Union), Greensboro, North Carolina  
Dontfraid, Franklyn (Connecticut), New Haven, Connecticut  
Dovey, Mark E. (Duke), Greensburg, Pennsylvania  
Earnhardt, Richard C. (North Carolina State), Millers Creek, North Carolina  
Ellsworth, Carolyn Ann Huff (Drury), St. James, Missouri  
Eshbaugh, Willis G., Jr. (Emory), Ft. Myers, Florida  
Evans, Avery J. (Virginia), Virginia Beach, Virginia  
Evans, Josephine Adamson (Duke), Norfolk, Virginia  
Faberowski, Nicholas (Duke), Pompano Beach, Florida  
Fairchild, Karen D. (Wellesley), Raleigh, North Carolina  
Farmer, Douglas G. (Duke), Charlotte, North Carolina  
Farmer, Roger W. (South Carolina), Anderson, South Carolina  
Farmer, Thomas H. R. (Duke), Durham, North Carolina  
Featherston, Mark W. (Duke), Charlotte, North Carolina  
Flanagan, Brian (Davidson), Lakeland, Florida  
Flick, Conrad L. (North Carolina State), Taylorsville, North Carolina  
Flyer, Jack L. (Cornell), Rockville, Maryland  
Forman, Mark S. (Yale), Great Neck, New York  
Friedberg, Richard C. (Stanford), Longboat Key, Florida  
Gest, Kathleen L. (North Carolina at Chapel Hill), Dunwoody, Georgia  
Gordon, John D. (Princeton), Milton, Massachusetts  
Hendrickson, Steven C. (North Carolina at Chapel Hill), Danville, Virginia  
Heng, Michelle (Massachusetts Institute of Technology), Lincoln, Nebraska  
Hensley, Martee L. (Duke), Sebring, Florida  
Herlong, James R. (Davidson), Rock Hill, South Carolina  
Hessling, Janice J. (Notre Dame), Carrboro, North Carolina  
Hjelmstad, Russell (Colorado), Englewood, Colorado  
Hooch, Jennifer L. (Oberlin), Gary, Indiana  
Humayun, Mark S. (Georgetown), Potomac, Maryland  
Jablonover, Michael R. (Duke), Raleigh, North Carolina  
Jacobs, Alan R. (Duke), Wyckoff, New Jersey  
Joines, Ronald W., Jr. (Duke), Cincinnati, Ohio  
Kaplan, Todd (New York at Stony Brook), Baldwin, New York  
Karegeannes, James C. (South Carolina), Spartanburg, South Carolina  
Keithahn, Stephen T. (Yale), Benson, Minnesota  
Kime, Robert C. III (Wheaton), Fairview Park, Ohio  
Koopersmith, Tina B. (Duke), Hewlett, New York  
Landon, Mark (California at San Diego), Greenville, North Carolina

LeCroy, Charles M., Jr. (Duke), Lexington, North Carolina  
 Lin, Janet C. (Harvard), Arcadia, California  
 Madden, John F. (Amherst) New Britain, Connecticut  
 Maddox, Ricky P. (Erskine), Donalds, South Carolina  
 Madwed, David S. (Duke), Easton, Connecticut  
 Mavros, Sharon A. (Johns Hopkins), Bayville, New York  
 Maxfield, Steven R. (Utah), Salt Lake City, Utah  
 Maynor, Carolyn Chang (North Carolina at Chapel Hill), Fayetteville, North Carolina  
 McDonnell, Kenneth P. (Notre Dame), Alexandria, Virginia  
 McGinnis, Hirschel D. (Maryland), Lanham, Maryland  
 McIntosh, Mark S. (Duke), Sanford, Florida  
 Mody, Elinor A. (Duke), Potomac, Maryland  
 Moore, Kenneth E. (Maryland), Rockville, Maryland  
 Murry, Charles E. (North Dakota), Bismark, North Dakota  
 Myers, Barry S. (Toronto), Toronto, Ontario, Canada  
 Nastala, Chet L. (Harvard), Philadelphia, Pennsylvania  
 Nathan, Lauren (Stanford), Palo Alto, California  
 Nichols, Kim E. (Dartmouth), Malden Bridge, New York  
 Nicholson, John C. (North Carolina at Chapel Hill), Charlotte, North Carolina  
 Nicholson, Pamela Bond (Hamilton), Massena, New York  
 Odom, Angela D. (Dillard), Shreveport, Louisiana  
 Owen, Clarence H. (Duke), Osprey, Florida  
 Patel, Dhavalkuma D. (Duke), Charlotte, North Carolina  
 Peters, Brandon M. (North Carolina at Chapel Hill), Elizabeth City, North Carolina  
 Poteat, Harry T. (Pomona), Paoli, Pennsylvania  
 Porter, Lisa E. (William and Mary), Springfield, Virginia  
 Riska, Paul F. (Cornell), Staten Island, New York  
 Roberts, Joan T. (North Carolina at Greensboro), Greensboro, North Carolina  
 Rosenberg, Mindy C. (Pennsylvania), Plantation, Florida  
 Russell, Mark W. (Cornell), Orchard Park, New York  
 Savitt, Michael A. (Duke), West Allis, Wisconsin  
 Schmaltz, Robert A. (Duke), Fairfield, Ohio  
 Schuman, Robert W. (Pennsylvania), Merrick, New York  
 Schwartz, Marc S. (Emory), Holmdel, New Jersey  
 Shoup, Scott A. (Northwestern), Omaha, Nebraska  
 Simons, Grant (Duke), Closter, New Jersey  
 Skaryak, Lynne A. (North Carolina at Chapel Hill), Charlotte, North Carolina  
 Slemp, Catherine C. (Princeton), Richmond, Virginia  
 Smith, Spencer M. (Brigham Young), Mesa, Arizona  
 Sparks, Jeffrey D. (Yale), Wallingford, Pennsylvania  
 Stevens, William R. (North Carolina State), Raleigh, North Carolina  
 Tarry, Wallace C. (Hampden-Sydney), Oxford, North Carolina  
 Terrell, Grace E. (North Carolina at Chapel Hill), Siler City, North Carolina  
 Thierjung, Christina (Princeton), Rye, New York  
 Toscano, Joseph D. (Dartmouth), Merritt Island, Florida  
 Tourian, Karen A. (St. John's), Durham, North Carolina  
 Trachman, Jayne F. (Cornell), Brooklyn, New York  
 Vance, Charles R. (Princeton), Birmingham, Alabama  
 Wang, Henry Z. (Northwestern), Pittsburgh, Pennsylvania  
 Webb, Michael S. (Virginia), Norfolk, Virginia  
 Wiener, Dana Nowicki (Fordham), Carlstadt, New Jersey  
 Wolff, Steven D. (Yale), Quincy, Massachusetts  
 Zaroff, Wendy (Yale), Rochester, New York

### Class of 1990

Adamson, William T. (Princeton), Norfolk, Virginia  
 Ahearn, Eileen P. (Swarthmore), South Windsor, Connecticut  
 Ahmed, Yasmath F. (Massachusetts Institute of Technology), Binghamton, New York  
 Anderson, Karen Sue (Virginia), Wilmington, Delaware  
 Avva, Ravisankar R. (North Carolina at Chapel Hill), Greensboro, North Carolina  
 Axelrod, Mac (California at Berkeley), Beverly Hills, California  
 Bacon, David S. (Oberlin), Midland, Michigan  
 Bass, James C. (Middlebury), Charlotte, North Carolina  
 Bates, Michael D. (Duke), Rochester, Michigan  
 Black, Kevin J. (Brigham Young), Lehi, Utah

Boisselle, Phillip M. (North Carolina at Chapel Hill), Fayetteville, North Carolina  
 Bravo, Nicola S. (George Washington), Silver Spring, Maryland  
 Bronstein, Seymour M. (Duke), Durham, North Carolina  
 Brooks, Werner C. (Massachusetts Institute of Technology), Fayetteville, North Carolina  
 Buchsbaum, Tamar J. (Dartmouth), Wyncote, Pennsylvania  
 Bunton, Jayne L. (Wake Forest), Union Grove, North Carolina  
 Chan, Krammie M. (North Carolina at Chapel Hill), Charlotte, North Carolina  
 Chao, Albert C. (North Carolina at Chapel Hill), Fayetteville, North Carolina  
 Checani, Gregg C. (Dartmouth), Natick, Massachusetts  
 Cheng, Christine A. (Kansas), Lawrence, Kansas  
 Colligan, Joseph F., Jr. (Chicago), Jacksonville, North Carolina  
 Cope, Darrell Anthony (North Carolina State), Cary, North Carolina  
 Crews, Jennie Robertson (North Carolina at Chapel Hill), Burlington, North Carolina  
 Dalton, James D., Jr. (Clemson), Summerville, South Carolina  
 Darling, Thomas N. (Houghton), Rochester, New York  
 Doce, Stacy L. (Union), Newburgh, New York  
 Dudley, Raymond A. (Duke), Houston, Texas  
 Edelberg, Jay M. (Columbia), Shaker Heights, Ohio  
 Enright, Jill (Duke), Greensboro, North Carolina  
 Epstein, Robert E. (Pennsylvania), Edison, New Jersey  
 Feeser, Scott A. (Duke), Plainsboro, New Jersey  
 Fischer, Marc (Duke), Jericho, New York  
 FitzHarris, Gregory P. (U. S. Military Academy), Gainesville, Florida  
 Frucht, David M. (Virginia), Ft. Washington, Maryland  
 Garner, Juli A. (Virginia), Aberdeen, Maryland  
 Ghotbi, Muhammad S. (Loyola), Towson, Maryland  
 Gingrich, Jay A. (Kansas), Fairway, Kansas  
 Gleason, Lisa (Duke), Groton, Massachusetts  
 Go, Joan M. (Johns Hopkins), Ellicott City, Maryland  
 Gottlieb, Justin L. (North Carolina at Chapel Hill), Winston-Salem, North Carolina  
 Graff, Jonathan M. (Miami, Ohio), Xenia, Ohio  
 Graham, Bethany (Duke), Nashville, Tennessee  
 Gugenheim, Robin (Johns Hopkins), Fair Lawn, New Jersey  
 Hale, Laura P. (Michigan State), Durham, North Carolina  
 Hall, Bruce L. (Princeton), Warminster, Pennsylvania  
 Hall, Charles D. (North Carolina at Chapel Hill), Burlington, North Carolina  
 Hammes, Stephen (Cornell), Ithaca, New York  
 Harrell, Robert L., III (North Carolina at Chapel Hill), Baltimore City, Maryland  
 Hawkins, Saralyn R. (Erskine), Gastonia, North Carolina  
 Holder, Chad A. (Wake Forest), Clemmons, North Carolina  
 Holmes, Jude, Jr. (North Carolina at Chapel Hill), Maple Hill, North Carolina  
 Holt, Peter D. (Virginia), Silver Spring, Maryland  
 Hyer, Randall N. (United States Naval Academy), Los Alamos, New Mexico  
 Inge, W. Warriner, III (Davidson), Dover, Delaware  
 Jerome, Keith R. (Georgetown), Ashland, Kentucky  
 Karfiat, Cynthia S. (Duke), Chicago, Illinois  
 Kaufman, Jeffrey (New York at Stony Brook), Plainview, New York  
 Kenan, Daniel J. (William and Mary), Durham, North Carolina  
 Koger, Kim E. (Florida), Orlando, Florida  
 Laforet, Genevieve (Harvard/Radcliffe), Chestnut Hill, Massachusetts  
 LeMosy, Ellen K. (Florida), Orlando, Florida  
 Lilley, Eileen R. (Louisiana), Slidell, Louisiana  
 Maki, Jeffrey H. (California at San Diego), Davis, California  
 Malisch, Timothy W. (Missouri), Rolla, Missouri  
 Mast, Alan (Illinois), Urbana, Illinois  
 McAvoy, Kathleen T. (Virginia Polytechnic Institute), Warminster, Pennsylvania  
 McCahill, Laurence E. (Duke), Western Springs, Illinois  
 McDonald, Josh W. (Princeton), Huntington, New York  
 McKee, Scott D. (Colorado), Aurora, Illinois  
 McMillan, Edward B. (Duke), Charleston, West Virginia  
 Miller, Mark F. (Baylor), Midland, Texas  
 Moran, Kimberly (Maryland), Columbia, Maryland  
 Morrow, Jennifer E. (Rice), Cedar Falls, Iowa  
 Morrow, Nathan G. (Williams), Perrysburg, Ohio  
 Moseley, Walton (Duke), Raleigh, North Carolina  
 Moskaluk, Christopher A. (Illinois), Midlothian, Illinois  
 Muly, Emil C. III (Johns Hopkins), Southport, Connecticut

Pacifico, Albert, Jr. (Duke), Helena, Alabama  
 Paolini, John F. (Tulane), New Orleans, Louisiana  
 Papadopoulos, Spyridon (North Carolina at Chapel Hill), Sanford, North Carolina  
 Paranka, Julia A. (Colorado State), Ft. Collins, Colorado  
 Perona, Barbara (Illinois at Chicago), Chicago, Illinois  
 Perry, William B. (Louisiana), Hammond, Louisiana  
 Persons, Derek A. (Duke), Gaffney, South Carolina  
 Pracyk, John B. (Duke), Oak Brook, Illinois  
 Pratt, Rebecca A. (Wake Forest), Durham, North Carolina  
 Pruthi, Asit S. (Harvard), San Jose, California  
 Query, Charles C. Jr. (Duke), Kannapolis, North Carolina  
 Rajan, Rishi R. (Maryland), Gaithersburg, Maryland  
 Rettig, Matthew B. (Wesleyan), Beverly Hills, California  
 Rice, Jeffrey J. (Texas at Austin), San Angelo, Texas  
 Robbins, Robert J. (Louisiana), Metairie, Louisiana  
 Rodabaugh, Kerry J. (North Carolina at Greenville), Raleigh, North Carolina  
 Rubenstein, David S. (Princeton), Brooklyn, New York  
 Rustad, Todd J. (St. Olaf), Lincoln, Nebraska  
 Sater, Richard A. (Florida), Cocoa Beach, Florida  
 Schuster, James (South Dakota), Rapid City, South Dakota  
 Shoemaker, David L. (Davidson), Raleigh, North Carolina  
 Smith, Matthew R. (Canisius), Lakeview, New York  
 Spiegel, David A. (Duke), Durham, North Carolina  
 Starck, Linda M. (Columbia/Hunter), Middle Village, New York  
 Stasheff, Steven F. (North Carolina at Chapel Hill), Raleigh, North Carolina  
 Stein, Adam D. (Pennsylvania), Closter, New Jersey  
 Stenzel, Timothy T. (Grinnell), New Hope, Minnesota  
 Stoler, Robert C. (Duke), Louisville, Kentucky  
 Stout, Steven P. (Harvard), Greensboro, North Carolina  
 Stranne, Steven (Duke), Columbus, Ohio  
 Sumrall, Richard W. (U. S. Air Force Academy), Merritt Island, Florida  
 Swaim, Mark W. (North Carolina at Greensboro), Kernersville, North Carolina  
 Thielman, Nathan M. (Wheaton), Montreat, North Carolina  
 Thomas, Laura O. (Princeton), St. Louis, Missouri  
 Tilly, Shauna S. (Duke), Charlotte, North Carolina  
 Tsai, Donald E. (Harvard), Bethesda, Maryland  
 Vandermeer, Emile (North Carolina at Chapel Hill), Clayton, North Carolina  
 Van Steyn, Scott J. (Duke), Worthington, Ohio  
 Ventimiglia, Joe B. (Dartmouth), Arlington, Texas  
 Virnelli, Suzanne (Dartmouth), Winchester, Massachusetts  
 Waite, Kathleen A. (Case Western Reserve), Huron, Ohio  
 Wallenal, Michele (Virginia), Flemington, New Jersey  
 Wang, Andrew (Duke), Durham, North Carolina  
 Warner, Michael A. (Duke), Albany, Oregon  
 Watson, Mark (Rice), Durham, North Carolina  
 Wei, Maria L. (Michigan), Ann Arbor, Michigan  
 Woodard, Pamela (Duke), Newton, Massachusetts  
 Wu, Doris P. (Duke), Davie, Florida  
 Wu, Justin J. (Duke), Raleigh, North Carolina  
 Wyatt, Richard M. (Washington), Calhan, California  
 Yacullo, Robert C., Jr. (Duke), Durham, North Carolina  
 Yeh, Flora M. (Vanderbilt), Jacksonville, Alabama  
 Young, Katherine B. (Duke), Newport News, Virginia  
 Young, Stephanie T. (Duke), Rockville, Maryland  
 Zeiler, Mari Ann (Carleton), Honolulu, Hawaii

### Class of 1991

Abramson, Murray A. (Duke), Durham, North Carolina  
 Alspaugh, James A., II (North Carolina at Chapel Hill), Greensboro, North Carolina  
 Amato, Mary T. (Tulane), Durham, North Carolina  
 Anderson-Brown, Tedra Louise (Duke), Miami, Florida  
 Armitage, John Brooks (Yale), Durham, North Carolina  
 Bachman, Eric S. (Cornell), Tonawanda, New York  
 Barry, Todd Skipper (North Carolina at Chapel Hill), Chapel Hill, North Carolina  
 Battistone, Michael J. (Southern College of Seventh-day Adventists), Hendersonville, North Carolina

Blackford, Susan Pennington (Wellesley), Concord, New Hampshire  
 Bracey, Victor A. (Pennsylvania State), Columbia, Maryland  
 Buchanan, Scott A. (Brown), Lynnfield, Massachusetts  
 Cazzaniga, Stefano L. (Johns Hopkins), Scarsdale, New York  
 Chander, Rajat (Columbia), Raleigh, North Carolina  
 Choi, Mina Nui (North Carolina at Chapel Hill), Chapel Hill, North Carolina  
 Chu, Charleen T. (Harvard), Carson, California  
 Clausen, Kimberly J. (Dartmouth), Dedham, Massachusetts  
 Cole, Eric L. (Stanford), Durham, North Carolina  
 Conrad, Timmie Joe (Purdue), Findlay, Ohio  
 Corcoran, Melissa C. (Tulane), Metairie, Louisiana  
 Cotterell, Adrian H. (Miami), Miami, Florida  
 Coyne, Tamera D. (Brown), Malden, Massachusetts  
 Cuffe, Michael S. (Massachusetts Institute of Technology), Pittsford, New York  
 DeMallie, Diane A. (Cornell), Pittsford, New York  
 DiBernardo, Louis R. (Harvard), West Hurley, New York  
 Doe, Erin Andrew (United States Military Academy), Roswell, New York  
 Dolor, Rowena J. (Duke), Columbus, Ohio  
 Doyle, Kevin Michael (Virginia), Smithtown, New York  
 Edwards, Paul D. (North Carolina at Chapel Hill), Raleigh, North Carolina  
 Ehrmann, Martha L. (Dartmouth), Waban, Massachusetts  
 Farnitano, Christopher (Duke), Mt. Sinai, New York  
 Farris, David B. (United States Air Force Academy), St. Augustine, Florida  
 Fortuin, Floyd D., Jr. (California at San Diego), Danville, California  
 Fyda, Thomas M. (Dartmouth) Boardman, Ohio  
 Gage, Jennifer C. (South Florida), St. Petersburg, Florida  
 Gallup, Steven B. (North Carolina State), Raleigh, North Carolina  
 Ganchi, Parham A. (Princeton), Wayne, New Jersey  
 Gangarosa, Lisa M. (Cornell), Rochester, New York  
 Gault, Janice Ann (Duke), La Grange, Kentucky  
 Geertgens, Pamela A. (Dartmouth), Cooperstown, New York  
 Gillanders, William E. (Williams), Fairfax, Virginia  
 Graff, David H. (Miami), Beavercreek, Ohio  
 Gupta, Amit G. (Johns Hopkins), Langhorne, Pennsylvania  
 Harlan, William R. (North Carolina at Chapel Hill), Durham, North Carolina  
 Harley, James E. (South Carolina), Banberg, South Carolina  
 Hazzard, Susan L. (Hampshire), Lewisville, North Carolina  
 Hedrick, Holly L. (Indiana), Salem, Indiana  
 Hernandez, Javier (United States Military Academy), Arecibo, Puerto Rico  
 Higgins, Peter Doyle (Duke), Hudson, Ohio  
 Hoffman, Eric D. (Washington), Olympia, Washington  
 Johansen, Kirsten L. (Dartmouth), City Island, New York  
 Johnson, Cheryl M. (Harvard), Silver Spring, Maryland  
 Khawly, Joseph A. (Georgetown), Eastchester, New York  
 Knaut, Andrew L. (Duke), El Paso, Texas  
 Laskowitz, Daniel T. (Brown), Dobbs Ferry, New York  
 Lauvetz, Robert W. (Creighton), Stillwater, Oklahoma  
 Lilly, Ronald E. (Wake Forest), Beckley, West Virginia  
 Lim, Chang S. (Columbia), Rockville, Maryland  
 Lisanby, Sarah H. (Duke), Arlington, Virginia  
 Liu, Katharine (Duke), Colonial Heights, Virginia  
 Maier, Lisa (Cornell), Fredonia, New York  
 Mair, Scott D. (Stanford), Rochester, Minnesota  
 Mansbach, Harry H., III (Yale), Memphis, Tennessee  
 Mauney, Michael C. (Duke), Asheville, North Carolina  
 McAree, John A. (Michigan), Livonia, Michigan  
 McDermott, Thomas P., Jr. (North Carolina at Chapel Hill), Charlotte, North Carolina  
 McDonagh, Deidre (Wellesley), Winston-Salem, North Carolina  
 Meissner, John D. (Nebraska), Sutherland, Nebraska  
 Micca, Joseph L. (Cornell), Rochester, New York  
 Minogue, Michael F. (Duke), Durham, North Carolina  
 Morefield, Steven Q. (Virginia), Laredo, Texas  
 Nash, S. Russell (Wake Forest), Belton, South Carolina  
 Nunez, Michael J. (Louisiana State), Meraux, Louisiana  
 O'Brien, James W. (Brown), Albany, New York  
 Oetting, Thomas A. (Duke), Montgomery, Alabama  
 Olivier, Wendy-Ann (Wesleyan), Brooklyn, New York

Otley, Clark C. (Williams), Wayne, New Jersey  
 Oury, Tim D. (Purdue), Valparaiso, Indiana  
 Page, Edwin L. (Davidson), Columbus, Ohio  
 Pao, Bing S. (North Carolina at Chapel Hill), Raleigh, North Carolina  
 Parker, Jennifer L. (Brown), Silver Spring, Maryland  
 Perno, Joseph R. (Villanova), Trenton, New Jersey  
 Peters, Raymond F. (Michigan), Marquette, Michigan  
 Potts, Stephen B. (Southern Methodist), Oklahoma City, Oklahoma  
 Reynolds, Leslie D. (Hampton), Raleigh, North Carolina  
 Ritch, Karl A. (Loyola), St. Petersburg, Florida  
 Rokoske, Leslie D. (Georgetown), Boone, North Carolina  
 Roth, Neil S. (Duke), Pomona, New York  
 Shah, Shafqat (Johns Hopkins) Gaffney, South Carolina  
 Sharpe, Ann Lee (Duke), Elm City, North Carolina  
 Shih, Deborah P. (Birmingham-Southern), Huntsville, Alabama  
 Soto, Pablo F. (Princeton), Birmingham, Alabama  
 Stahl, John A. (Southern Methodist), Tulsa, Oklahoma  
 Stille, Christopher J. (Brown), Lexington, Massachusetts  
 Strain, Jay J. (Pennsylvania), Riverdale, New York  
 Suhr, Christopher (North Carolina at Chapel Hill), Raleigh, North Carolina  
 Suhr, Yun (North Carolina State), Cary, North Carolina  
 Suryanarayan, Kaveri (Massachusetts Institute of Technology), Kingston, Rhode Island  
 Tran, Nhu-Linh T. (Hawaii), Pearl City, Hawaii  
 Vakkur, Mark (U. S. Military Academy), South Bend, Indiana  
 Walsh, Catherine M. (Cornell), Baldwin, New York  
 Walter, Keith A. (California at Davis), Lafayette, California  
 Watrous, Susan M. (Vassar), Vestal, New York  
 Weidman, Eric R. (Dartmouth), Towson, Maryland  
 Williams, Tracy (Duke), Winston-Salem, North Carolina  
 Yue, Charles C. (Duke), Wilmington, North Carolina  
 Zakaria, Aamir M. (Harvard), Newington, Connecticut  
 Zimmerman, David A. (Ohio State), Reston, Virginia

## Class of 1992

Aaron, Mark F. (Emory), Millen, Georgia  
 Aust, Michelle (Duke), Spokane, Washington  
 Axelson, David A. (Brown), Pittsburgh, Pennsylvania  
 Baker, Jay A. (Pennsylvania), Lebanon, New Jersey  
 Banks, Beth Ann (Stanford), Brooklyn, New York  
 Banson, Martin L. (Massachusetts Institute of Technology), Longmeadow, Massachusetts  
 Berend, Michael E. (Hanover), Columbus, Ohio  
 Blobe, Gerard (Notre Dame), Coopersburg, Pennsylvania  
 Bouras, Ernest P. (Vanderbilt), Jacksonville, Florida  
 Brady, Megan J. (Georgetown), Rochester Hill, Michigan  
 Byers, Jeffrey D. (Rice), Tulsa, Oklahoma  
 Castellino, Sharon M. (Mount Holyoke), Matthews, North Carolina  
 Catena, Thomas G. (Brown), Amsterdam, New York  
 Chao, Richard C. (Duke), Fayetteville, North Carolina  
 Chen, Edward P. (Stanford), Athens, Georgia  
 Chen, Herbert (Stanford), Marshfield, Wisconsin  
 Clapaes, John T. II (Virginia), Bloomington, Indiana  
 Clyde, Brent L. (California at Los Angeles), Simi Valley, California  
 Coleman, Lee R., Jr. (Miami), Miami, Florida  
 Colvin, Richard (Cornell), West Hempstead, New York  
 Crownover, Richard L. (Linfield), Durham, North Carolina  
 Cvijanovich, Natalie Z. (Wake Forest), Winston Salem, North Carolina  
 Dalton, Thomas M. (Stanford), Springfield, Missouri  
 Davidson, James J. (Ohio State), Westerville, Ohio  
 Deucher, Robert L. (Emory), Parma, Ohio  
 Ducey, Anne L. (Notre Dame), Endwell, New York  
 Eck, John B. (Claremont McKenna), Corona del Mar, California  
 Eng, Michael A. (Maryland), Cooksville, Maryland  
 Faulstich, Michael E. (North Carolina at Charlotte), Birmingham, Alabama  
 Fisher, Andrew J. (Yale), Miami, Florida  
 Fisher, Marcus S., Jr. (North Carolina at Chapel Hill), Elizabethtown, North Carolina  
 Fromer, Eric S. (Virginia), McLean, Virginia  
 Gade, Karen (Appalachian), Boone, North Carolina

Garfinkel, Marc R. (Duke), Pittsburgh, Pennsylvania  
 Gazdag, Andre (California at Davis), Davis, California  
 George, Daniel J. (Duke), Groveland, Massachusetts  
 Gordon, Helen M. (Princeton), Chevy Chase, Maryland  
 Greene, Karen T. (Duke), West Hempstead, New York  
 Heck, Donald V. (Wake Forest), Clemmons, North Carolina  
 Henry, Mark (Colorado), Arvada, Colorado  
 Hernandez, Eugenio J. (Duke), Key Biscayne, Florida  
 Heskestad, Linda M. (Duke), Dover, Massachusetts  
 Hilton, Elizabeth T. (Princeton), Nashville, Tennessee  
 Hoopes, Charles (Lebanon Valley), Winston-Salem, North Carolina  
 Huesgen, Christopher T. (Tennessee), Cary, North Carolina  
 Idriss, Salim F. (Duke), Evanston, Illinois  
 Ince, Carlos S., Jr. (Yale), Hampton, New Jersey  
 Jamieson, Denise (Pennsylvania), Lake Wylie, South Carolina  
 Keller, Vern A. (California at Los Angeles), Los Angeles, California  
 Kim, Terry (Duke), Plymouth, North Carolina  
 Kirk, Mary L. (North Carolina at Chapel Hill), Chapel Hill, North Carolina  
 Klugherz, Bruce D. (Harvard), Huntingdon Valley, Pennsylvania  
 Levine, Todd D. (Haverford), Columbia, Maryland  
 Lien, Mary H. (Massachusetts Institute of Technology), San Marino, California  
 Lilly, Mary K. (Wellesley), Beckley, West Virginia  
 Lin, Shu S. (Harvard), Arcadia, California  
 Lloyd, Rhea A. (Howard), Potomac, Maryland  
 McRitchie, Marilyn D. (Duke), San Juan Capistrano, California  
 MacDougall, Michael J. (Wisconsin), Racine, Wisconsin  
 Marquis, Kimberley A. (Worcester Polytechnic Institute), Mendon, Massachusetts  
 Martineau, Sheila M. (William and Mary), Suffern, New York  
 May, Christopher W. (Brown), Rochester, New York  
 Melnick, Jeffrey R. (Princeton), Danville, Virginia  
 Miller, Jeannie E. (North Carolina State), Pineville, North Carolina  
 Minahan, Robert E., Jr. (Yale), Fort Myers, Florida  
 Moreadith, Jeffrey H. (North Carolina State), Reinholds, Pennsylvania  
 Morris, Jalonda M. (Xavier), New Orleans, Louisiana  
 Murphy, Brian (Johns Hopkins), Holtsville, New York  
 Noonan, Thomas J. (Princeton), Moreland Hills, Ohio  
 Oakley, Lisa M. (Stanford), St. Louis, Missouri  
 Patton, Karen L. (Dartmouth), Durham, North Carolina  
 Pauk, John S. (Oberlin), Durham, North Carolina  
 Pruthi, Raj S. (Stanford), Boca Raton, Florida  
 Rajasinghe, Hiranya A. (Yale), Englewood, New Jersey  
 Reddy, Ashok S. (Duke), Simpsonville, South Carolina  
 Ricci, William M. (Duke), Woodbury, New York  
 Robinette, Tomma A. (Virginia), Gate City, Virginia  
 Royal, Vernice (Duke), Goldsboro, North Carolina  
 Sasser, David C. (Miami), North Miami Beach, Florida  
 Shao, Spencer (Virginia), Springfield, Virginia  
 Siderowf, Andrew D. (Yale), Westport, Connecticut  
 Smith, Jill A. (Canisius), Durham, North Carolina  
 Somers, Mark J. (Yale), Kettering, Ohio  
 Sonkin, Peter L. (North Carolina at Chapel Hill), Fayetteville, North Carolina  
 Steiner, Theodore (Harvard), Coral Gables, Florida  
 Stonnington, Michael J. (Virginia), Richmond, Virginia  
 Sung, Jane (Cornell), Potomac, Maryland  
 Taber, Jeffrey E. (Johns Hopkins), El Paso, Texas  
 Taylor, Donald M. (Duke), Durham, North Carolina  
 Tedder, Stephen D. (Duke), Greensboro, North Carolina  
 Tharrington, Christopher L. (North Carolina at Chapel Hill), Raleigh, North Carolina  
 Wallace, Michael B. (Oberlin), Durham, North Carolina  
 Walsh, Michael J. (Case Western Reserve), Riverview, Michigan  
 Watts, Greta Y. (Miami), Burgaw, North Carolina  
 Weidner, Alison C. (Duke), Allentown, Pennsylvania  
 Wilson, Stephen J. (Stanford), Santa Ana, California  
 Wray, Dannah W. (Warren Wilson), Chapel Hill, North Carolina  
 Wyss, Stephen P. (California at San Diego), Manhattan Beach, California  
 Yen, Stephanie P. (Dartmouth), Hanover, New Hampshire  
 Young, Timothy N. (Duke), Durham, North Carolina

## Class of 1988 with Postgraduate Year One Appointments

- Ahearn, Paul Michael (McLean, Virginia) Duke University Medical Center, Durham, North Carolina—Surgery
- Anderson, Ian Churchill (Chevy Chase, Maryland) Johns Hopkins Hospital, Baltimore, Maryland—Internal Medicine
- Anderson, William Deaton (Durham, North Carolina) Vanderbilt University, Nashville, Tennessee—Internal Medicine/Cardiology
- Bolster, David Eric (Durham, North Carolina) Portsmouth Naval Hospital, Portsmouth, Virginia—Internal Medicine
- Bolster, Marcy Behar (Durham, North Carolina) Eastern Virginia Graduate School of Medicine, Norfolk, Virginia—Internal Medicine
- Brodeur, David (Brunswick, Maine) Duke University Medical Center, Durham, North Carolina—Internal Medicine
- Budnick, Sydna Gavriel (Stuart, Florida) University of Connecticut, Farmington, Connecticut—Obstetrics and Gynecology
- Burk, Robert W. III (Parkersburg, West Virginia) University of Florida Medical Center, Shands Hospital, Gainesville, Florida—General Surgery
- Calle, Angela Maria (Timonium, Maryland) Lancaster General Hospital, Lancaster, Pennsylvania—Family Practice
- Calton, William Cuyler, Jr. (Charlotte, North Carolina) Dwight David Eisenhower Army Medical Center, Augusta, Georgia—General Surgery
- Chen, Seena H. (Bryn Mawr, Pennsylvania) Johns Hopkins Hospital, Baltimore, Maryland—Obstetrics and Gynecology
- Chow, Gregory Henkuo (Bridgewater, New Jersey) University of California, Los Angeles, California—Orthopaedic Surgery
- Constantine, Jeffrey M. (Jacksonville, Florida) University of Florida, Gainesville, Florida—Internal Medicine
- Cook, Perry Fletcher (Sonoma, California) Stanford University, Palo Alto, California—Radiology
- Cox, Patricia Mary (Point Lookout, New York) University Health Center of Pittsburgh, Pittsburgh, Pennsylvania—Internal Medicine
- Cramer, Pia Gemperli (Pleasant Valley, New York) Roanoke Memorial Hospital, Roanoke, Virginia—Family Medicine
- Cross, Pamela (Charlottesville, Virginia) North Colorado Medical Center, Greeley, Colorado—Family Medicine
- Crownover, Brenda Powell (Bellevue, Washington) Duke University Medical Center, Durham, North Carolina—Family Practice
- Cullen, Joseph Patrick (West Hartford, Connecticut) University of Rochester, Strong Memorial Hospital, Rochester, New York—Orthopaedic Surgery
- Culton, Mark Anderson (Charlotte, North Carolina) Emanuel Hospital/Health Center, Portland, Oregon—Transitional
- Doron, Mia Wechsler (Weston, Massachusetts) Duke University Medical Center, Durham, North Carolina—Pediatric Endocrinology
- Fang, James Chen-Tson (Carbondale, Illinois) Johns Hopkins Hospital, Baltimore, Maryland—Internal Medicine
- Flannelly, Christina Gephart (Arlington, Virginia) North Carolina Memorial Hospital, Chapel Hill, North Carolina—Pediatrics/Neonatology
- Foster, Jill Allison (Silver Spring, Maryland) University of Cincinnati, Cincinnati, Ohio—Family Practice
- Frantz, Frazier Woodrow (Hammon, New Jersey) Medical College of Virginia, Richmond, Virginia—General Surgery/Transplantation
- Frazier, David Worth (Roanoke Rapids, North Carolina) Duke University Medical Center, Durham, North Carolina—Cardiology/Electrophysiology
- Freeman, Bradley Drew (Longwood, Florida) Duke University Medical Center, Durham, North Carolina—Internal Medicine
- Gibson, James Bruce (San Francisco, California) Children's Hospital of Philadelphia, Philadelphia, Pennsylvania—Pediatrics/Genetics
- Go, Loewe Ong (Quezon City, Philippines) Strong Memorial Hospital, Rochester, New York—Internal Medicine
- Goldberg, Marc Andrew (Brooklyn, New York) Tucson Hospital Medical Education Program, Tucson, Arizona—Transitional/Ophthalmology
- Grossnickle, Mark Earl (Greenville, North Carolina) Medical University of South Carolina, Charleston, South Carolina—Diagnostic Radiology
- Haim, Kevin (Silver Spring, Maryland) Duke University Medical Center, Durham, North Carolina—Obstetrics and Gynecology
- Hill, Joseph Addison, Jr. (Burlington, North Carolina) Paris, France—Research
- Hoehner, Jeff Carl (Pocatello, Idaho) University of Iowa, Iowa City, Iowa—General Surgery



Hoffman, Kristina M. (San Diego, California) Wilford Hall United States Air Force Medical Center, San Antonio, Texas—Pediatrics

Hollett, Michael D. (Arlington Heights, Illinois) Boston University Hospital, Boston, Massachusetts—Medicine/Radiology

Holway, Brent Patrick (Charlotte, North Carolina) Children's Hospital of Philadelphia, Philadelphia, Pennsylvania—Pediatrics/Intensive Care Medicine

Huang, Mary Stephanie (Houghton, Michigan) New England Medical Center, Boston, Massachusetts—Pediatrics

Hulka, Gregory Fabian (Chapel Hill, North Carolina) North Carolina Memorial Hospital, Chapel Hill, North Carolina—Surgery/Otolaryngology

Ibrahim, George Kaissar (Smithfield, North Carolina) Duke University Medical Center, Durham, North Carolina—General Surgery/Urology

Jeffries, Jennifer Jean (Washington, DC) Baylor College of Medicine, Houston, Texas—Pediatrics

King, Robert T. III (Hickory, North Carolina) Georgia Baptist Medical Center, Atlanta, Georgia—Transitional/Ophthalmology

Kinsel, Laura B. (Richland, Washington) Stanford University, Palo Alto, California—Medicine

Kinsman, James Murray III (Louisville, Kentucky) University of Colorado, Denver, Colorado—Internal Medicine

Koriwchak, Michael John (McMurray, Pennsylvania) Vanderbilt University, Nashville, Tennessee—General Surgery/Otolaryngology

Landay, Kimberly (Pittsburgh, Pennsylvania) Duke University Medical Center, Durham, North Carolina—Internal Medicine/Diagnostic Radiology

Leclair, Denise M. (Washington, DC) Georgetown University Medical Center, Washington, DC—Family Practice/Psychiatry

Lee, Joon Sup (Morganton, North Carolina) Massachusetts General Hospital, Boston, Massachusetts—Internal Medicine/Hematology-Oncology

Lee, Su Kin (Sandakan, Malaysia) Baylor College of Medicine, Houston, Texas—Internal Medicine/Academic Medicine

Leiser, Jeffrey David (Englewood, Colorado) University of Colorado, Denver, Colorado—Pediatrics/Academic Pediatrics

Lontkowski, Susan Marie (Lafayette Hill, Pennsylvania) Medical College of Virginia, Richmond, Virginia—Obstetrics and Gynecology

Lyerly, Mark Andrew (Rockwell, North Carolina) North Carolina Baptist Hospital, Winston Salem, North Carolina—Surgery/Neurosurgery

Lyerly, Walker IV (Hickory, North Carolina) George Washington University, Washington, DC—Psychiatry

Manus, Deborah Crovitz (Durham, North Carolina) West Suburban Medical Center, Oak Park, Illinois—Family Practice

Mao, Lisa Kay (Scottsdale, Arizona) Good Samaritan Hospital, Phoenix, Arizona—Internal Medicine/Ophthalmology

Markowitz, Jay Solomon (Woodmere, New York) Massachusetts General Hospital, Boston, Massachusetts—General Surgery/Cardiothoracic Surgery

Marrano, Neal Nicholas (Lackawanna, New York)—Infectious Disease Research/Internal Medicine

Mask, William Kenneth (Hamlet, North Carolina) University of Southern California, Huntington Memorial, Pasadena, California—Surgery/Orthopaedic Surgery

Maynor, Bobby R., Jr. (Pembroke, North Carolina) Duke University Medical Center, Durham, North Carolina—Internal Medicine

McDonough, Robert Sean (Bloomington, Minnesota) Stanford University Hospital, Palo Alto, California—Internal Medicine

McLoughlin, Thomas Michael, Jr. (Tinton Falls, New Jersey) University of Virginia, Charlottesville, Virginia—Anesthesiology

McQuigg, Molly Jane (Delaware, Ohio) University of Chicago, Chicago, Illinois—Obstetrics and Gynecology

Mennillo, Roger Niles (Warwick, Rhode Island) Duke University Medical Center, Durham, North Carolina—Pathology

Molter, David Wayne (Durham, North Carolina) Duke University Medical Center, Durham, North Carolina—Surgery/Otolaryngology

Obremsky, William Todd (Lebanon, Indiana) Methodist Hospital of Indiana, Indianapolis, Indiana—Surgery/Orthopaedics

Oetting, Marguerite Lois Henry (Saint Louis, Missouri) North Carolina Memorial Hospital, Chapel Hill, North Carolina—Pediatrics/General Pediatrics

Ozaki, Charles Keith (Lake City, Florida) New England Deaconess Hospital, Boston, Massachusetts—Surgery

Panza, William Sebastian (Emerson, New Jersey) Duke University Medical Center, Durham, North Carolina—Internal Medicine/Anesthesiology

Patton, Suzanne Elizabeth (Moorestown, New Jersey) Johns Hopkins Hospital, Baltimore, Maryland—Internal Medicine

Paul, Randal H. (Lake Jackson, Texas) Baylor College of Medicine, Houston, Texas—Medicine/Ophthalmology

Podolak, Michael Joseph (Kensington, Maryland) The Graduate Hospital, Philadelphia, Pennsylvania—Medicine/Diagnostic Radiology

- Pollard, John B. (Carmel, California) Stanford University, Palo Alto, California—Internal Medicine/Anesthesiology
- Powell, Allen Orlo (Wethersfield, Connecticut) Roanoke Memorial Hospitals, Roanoke, Virginia—Transitional
- Pressman, Eva Karen (Bayside, New York) Johns Hopkins Hospital, Baltimore, Maryland—Obstetrics and Gynecology
- Pyne, John I. B., Jr. (Princeton, New Jersey) University of Vermont, Burlington, Vermont—Surgery/Orthopaedics
- Racine, Susan Murchison (Wilmington, North Carolina) Mount Auburn Hospital, Cambridge, Massachusetts—Medicine/Primary Care Internal Medicine
- Rosenberg, Mark Robert (Gastonia, North Carolina) Washington University, St. Louis, Missouri—Psychiatry
- Rossitch, John Carlos (Winston Salem, North Carolina) Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania—Surgery/General Surgery
- Scarlett, Susan Marie (Hilton Head Island, South Carolina) Children's Memorial Hospital, Evanston, Illinois—Pediatrics/Radiology
- Schmidt, David Martin (Cascade, Wisconsin) University of California, San Francisco, California—Internal Medicine
- Schroering, Edward S., Jr. (Louisville, Kentucky) Camp Pendleton Naval Hospital, Camp Pendleton, California—Family Medicine
- Segreti, Eileen Marie (Bethesda, Maryland) McGaw Medical Center, Northwestern University, Chicago, Illinois—Obstetrics and Gynecology
- Simeone, Diane Marie (North Kingstown, Rhode Island) University of Michigan, Ann Arbor, Michigan—Academic General Surgery
- Simmons, Rache Michele (Charlotte, North Carolina) North Carolina Memorial Hospital, Chapel Hill, North Carolina—General Surgery/Plastic Surgery
- Skapek, Stephen Xavier (Shaker Heights, Ohio) Wilford Hall United States Air Force Medical Center, San Antonio, Texas—Pediatrics/Pediatric Oncology
- Smith, Bryan Wesley (New Bern, North Carolina) North Carolina Memorial Hospital, Chapel Hill, North Carolina—Pediatrics/Sports Medicine
- Sternbergh, Waldemar Charles August III (Chattanooga, Tennessee) Medical College of Virginia, Richmond, Virginia—Surgery
- Stinson, Michael Shawn (Greensboro, North Carolina) Johns Hopkins Hospital, Baltimore, Maryland—Internal Medicine
- Stone, Lisa Marie (Phoenix, Arizona) University of Washington, Seattle, Washington—Internal Medicine
- Straznickas, John Robert (Rockford, Illinois) University of California, San Francisco, California—Psychiatry
- Sukin, Craig Alan (Billings, Montana) Cornell University Medical College, The New York Hospital, New York, New York—Internal Medicine/Anesthesiology
- Swearengin, Dennis Roy (Statesville, North Carolina) Long Island College Hospital, New York, New York—Medicine/Radiology
- Talbott, Gregory Alan (Concord, North Carolina) University of Washington Affiliated Hospitals, Seattle, Washington—Pediatrics
- Tedder, Mark (Greensboro, North Carolina) Duke University Medical Center, Durham, North Carolina—Surgery/Thoracic Surgery
- Terris, David J. (Upper Saddle River, New Jersey) Stanford University, Palo Alto, California—Surgery/Academic Head and Neck Surgery
- Tope, Whitney Davison (Durham, North Carolina) University of Washington, Seattle, Washington—Internal Medicine/Dermatology
- Truett, Artis Preston III (Vidalia, Georgia) Vanderbilt University, Nashville, Tennessee—Medicine/Dermatology
- Tweed, J. Lindsey (Ormond Beach, California) Duke University Medical Center, Durham, North Carolina—Psychiatry
- Tyrey, Scott James (Durham, North Carolina) Duke University Medical Center, Durham, North Carolina—Obstetrics and Gynecology
- Van Hoesen, Karen Beth (Orinda, California) Duke University Medical Center, Durham, North Carolina—Hyperbaric Medicine Fellowship
- Walsh, Kim Marie (Madison, Wisconsin) Duke University Medical Center, Durham, North Carolina—Family Medicine/Inner City Primary Care
- Wang, Clark J. (Ann Arbor, Michigan) Duke University Medical Center, Durham, North Carolina—Psychiatry
- Weck, Karen Elizabeth (Great Falls, Virginia) Washington University, St. Louis, Missouri—Clinical Pathology/Research Pathology
- Wilson, Brett Lamond (Conway, South Carolina) Vanderbilt University, Nashville, Tennessee—Pediatrics
- Yang, Syngil Steven (Chappaqua, New York) Harvard University School of Public Health, Boston, Massachusetts—Surgery
- Yoshino, Paul Harutaka (San Pedro, California) University of California, San Diego, California—Internal Medicine/Pulmonary Medicine
- Zeidman, Seth Michael (Cherry Hill, New Jersey) Johns Hopkins Hospital, Baltimore, Maryland—Surgery/Neurosurgery



*School of Nursing*



## The Master of Science in Nursing Program

The School of Nursing offers a program leading to the Master of Science in Nursing degree, which educates professional nurses for advanced practice in a clinical specialty or administration. Graduates are prepared to function as clinical specialists in tertiary care settings or as mid-level administrators in complex organizations and to use high technology support systems for information and patient services.

The integration of education, practice, and research undergirds the entire curriculum and the behavior of those individuals involved in the educative process.

A graduate of the program will be expected to:

1. synthesize concepts and theories from nursing and related disciplines to form the basis for advanced practice;
2. demonstrate expertise in a defined area of advanced practice;
3. conduct scientific inquiry to validate and refine knowledge relevant to nursing;
4. demonstrate leadership and management strategies for advanced practice;
5. demonstrate proficiency in the use and management of advanced technology related to patient care and support systems;
6. analyze socio-cultural, ethical, economic, and political issues and develop strategies to influence the outcomes, and
7. demonstrate the ability to engage in collegial intra- and interdisciplinary relationships in the conduct of advanced practice.

The curriculum is designed to provide maximum flexibility for part-time study. Students have advisers with expertise and research interests in the student's chosen area of specialization. A student may choose one of three areas in which to specialize (1) critical care—adult or child; (2) oncology—adult or child; and (3) administration of nursing services. An emphasis on scholarship and practice is maintained throughout the curriculum.

General Curriculum Design	Credits
Theoretic Bases for Advanced Practice	3
Organizational Behavior and Processes	3
Health Care Technology	3
Processes of Inquiry	6
Area of Specialization, Content, and Practice	12-15
Elective	3-6
Thesis	6
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## Admission Requirements

1. Bachelor's degree with an upper division nursing major from a program accredited by the National League for Nursing.
2. Minimum of one year's experience in an area relevant to projected course of study in a clinical specialty and three years for administration.
3. Undergraduate grade point average of 3.0 on a 4.0 scale.
4. Satisfactory performance on the Graduate Record Examination.
5. Satisfactory completion of a course in descriptive and inferential statistics.
6. Eligibility to be licensed as a professional nurse in North Carolina.
7. Documentation of the acquisition of physical assessment knowledge and skills for those applicants choosing a clinical specialty.
8. Three references attesting to personal and professional qualifications, with at least two references from former employers, faculty members, or deans.
9. Personal interview; however, other arrangements may be considered when distance is a factor.

Selection will be based on the applicant's qualifications, intellectual curiosity, potential for professional growth, and contribution to the profession. Exception to any of these requirements is considered on an individual basis. Students are chosen without regard to race, religion, sex, or national origin.

## Date for Application

An application for full-time study, with all supporting documents, must be submitted by 1 March for fall semester early admission. Applications for part-time study must be received by 1 March, 1 July, or 1 January.

## Courses

**NUR-300. Theoretic Bases for Advanced Nursing Practice.** The major components of this core course—nursing, health, persons, and environment—are approached as the bases for advanced nursing practice in a complex health care center. The focus is the analysis of relevant principles, theories, and issues for the synthesis of a framework for advanced nursing practice. 3 credits.

**NUR-303. Organizational Behavior and Processes.** This course will examine the key concepts and elements which form the basis for understanding and analyzing the similarities and differences of groups and complex organizations. Selected theories of group and organizational dynamics, structure, process, and behaviors will be presented. 3 credits.

**NUR-306. Health Care Technology.** This course is designed to provide an eclectic study of technological modalities presently used to assist in the diagnosis and treatment of patients, planning and monitoring of care, management of information, and communicating among care providers. The student will be provided opportunities for the development of knowledge, intellectual skills, and clinical competence. The philosophy and ethical dilemmas inherent in the use of sophisticated equipment are examined. 3 credits.

**NUR-309. Processes of Inquiry I.** The focus of this course is on scientific inquiry and research methods needed for systematic investigation and expansion of nursing knowledge. The development of problem statements, organization of the literature review, consideration in design choice, and the relationship of design and statistical analysis are discussed in detail. 3 credits.

**NUR-310. Processes of Inquiry II.** This course is a continuation of Inquiry I. The emphasis of this course is on research methodology. The choice of data instrumentation, sampling design, sample size, data collection procedure, ethical issues, and practical concerns will be discussed. Application and interpretation of statistical procedures will be reviewed in depth. 3 credits.

**NUR-320. Critical Care Nursing I.** This course presents a perspective on selected developmental theories and patient and family responses to critical illness. It covers in depth cardiovascular and respiratory problems, treatment, and technology as a basis for advanced nursing practice with adults or children. The role of the clinical nurse specialist is introduced. Both didactic and clinical experience included. 4 credits.

**NUR-322. Critical Care Nursing II.** This course focuses on the complex problems, treatment, and technology of the renal, respiratory, gastrointestinal, and neuroendocrine systems in adults and children as a basis for advanced nursing practice. Both didactic and clinical experiences are included. 4 credits.

**NUR-324. Clinical Care Nursing III.** This course focuses on (1) the complex problems, treatment, and technology associated with traumatic injury, burns, and substance abuse as a basis for advanced nursing practice; (2) application of selected theories and skills in the critical care environment; and (3) implementation of the multiple roles of the critical care clinical nurse specialist with special emphasis on the role of consultant. Didactic and clinical experiences and directed study are included. 4 credits.

**NUR-330. Oncology Nursing I.** This course provides an in-depth understanding of the pathophysiological and biobehavioral aspects of cancer across the life span. Major topics include: (1) advances in treatment (2) management of disease and treatment and (3) biopsychosocial assessment of patients. Both didactic and clinical experiences are included in the course. 4 credits.

**NUR-332. Oncology Nursing II.** This course presents selected biopsychosocial and political issues associated with cancer as a chronic illness. Selected concepts underlying biobehavioral/nursing interventions related to the rehabilitative and supportive nursing care for adult and pediatric cancer patients will be covered. The course is divided into two modules. Both didactic and clinical experiences are included. 4 credits.

**NUR-334. Oncology Nursing III.** This course focuses on: (1) the role of the clinical nurse specialist caring for adult and pediatric patients participating in clinical trials using technological advances in the treatment of cancer; (2) major problems resulting from cancer and its related treatment; (3) the importance of inter-intra-agency collaboration at the local, state, and national level; (4) the development of effective coping strategies needed in caring for adult and pediatric patients with cancer. Both didactic and clinical experiences are included in the course. 4 credits.

**NUR-340. Nursing Management in Complex Organizations I.** This course focuses on those structural elements, issues, and situations that are the responsibility of the mid-level nurse manager in a complex organization. Management and organizational theories are used to develop strategies for dealing with stress imposed by internal and external forces in the environment. 3 credits.

**NUR-342. Nursing Management Practicum I.** The student observes and applies those concepts and theories that support the integrative functions and responsibilities of a mid-level nurse manager in a complex organization. Placement in service agencies is arranged to be congruent with the student's career plans. Prerequisite: NURS-340 or concurrent. 3 credits.

**NUR-344. Nursing Management in Complex Organizations II.** This course focuses on the examination of processes that facilitate the achievement of a high level of quality

patient care, employee productivity, and employee development in a complex environment. Leadership theories and concepts are used to analyze the adaptive mechanisms needed by the mid-level nurse manager in a dynamic and technologic environment. 3 credits.

**NUR-346. Nursing Management Practicum II.** This practicum experience provides the student with the opportunity to apply knowledge and skills in the management of select processes within a dynamic and technologic environment. Identification of strategies, intervention, and evaluation of various approaches to nursing management are investigated. Placement in service agencies is arranged to be congruent with the students' career plans. Prerequisite: NURS-344 or concurrent. 3 credits.

**NUR 348. Budget Planning and Financial Management.** This course focuses on the knowledge and skills required by the mid-level nurse manager for budget planning and fiscal management of a defined unit or department. Health care economics, technology, standards of practice, staffing, and patient classification examined from a budgetary perspective and within an environment of regulations and constraints. 3 credits.

**NUR-350. Thesis.** 6 credits.

**NUR-360. Educational Concepts of Teaching and Learning.** This course will focus on the key concepts and principles which form the rationale for understanding the teaching and learning process. Educational theories of teaching and learning, situations, and issues will be used to develop instructional strategies for the advanced nursing practice roles. 3 credits.

**NUR-399. Select Topics or Independent Study.** Students select a topic of professional interest from within the specialty area or in support of the specialty area, to be studied with a faculty member. Specific objectives, evaluation methods, and other requirements are determined prior to registering for the course of study. 1-3 credits.

**Electives.** Courses to be offered as electives will be developed by the nursing faculty in addition to courses offered by other departments and schools within the university. Elective courses are to be supportive of the area of specialization. 3-6 credits.

For additional information, please contact the Office of the Dean, Duke University School of Nursing, Box 3322, Durham, North Carolina 27710, (919) 684-3786.





*The Allied Health Programs*



## The Allied Health Programs

There are several health-services educational programs offered at the Duke University Medical Center that are neither medicine nor nursing. Every effort is made to keep each of these allied health programs closely related to the Medical School departments whose field they serve.

Several of today's allied health occupations require less than the baccalaureate level of education. Although the Duke University Medical Center has several such programs, they are often taught in junior colleges, technical institutes, or community hospitals. Such training programs in the latter institutions can frequently benefit from resources generally available only from medical centers, e.g. (1) in choosing programs appropriate to their resources and needs, (2) in developing articulated curricula, (3) in upgrading or attracting competent faculty, and (4) in arranging meaningful affiliations between the educational and the clinical care institutions that are required for many of these programs. The programs arrange, whenever possible, to help provide such resources to institutions located within the adjacent geographic region.

Programs in hospital administration and dietetics were initiated at the Medical Center in 1930. Programs in several disciplines dealing primarily with the laboratory aspects of clinical medicine began soon afterward. Due to marked advances in the field of medicine, new allied health programs were developed in the early 1960s to assist in the many medical specialties. Today there are approximately 300 students enrolled in Duke University allied health programs.

## Admissions

Admissions to all Duke University educational programs are reviewed by an appropriate admissions committee. Students matriculating in the various allied health programs must meet the admission standards of that program.

## Resources for Study

All of the study facilities available to medical students are available to allied health students. See descriptions for Library/Communications Center, the Thomas D. Kinney Central Teaching Laboratory and Division of Audiovisual Education which may be found in a foregoing portion of this bulletin.

Several of the allied health programs have affiliations with other hospitals and medical institutions for clinical instruction.

## Student Life

**Living Accommodations.** Because of the shortage of residential space, students enrolled in allied health certificate programs are not eligible for student housing. The Department of Housing Management maintains a listing of rental apartments, rooms and houses provided by property owners or real estate agencies in Durham. These listings are available in the department only; during the summer an assistant is available to answer questions and aid students in their attempt to obtain housing off campus. Information on commercial complexes in the Durham area may be obtained by writing to the Off-Campus Housing Office, 217 Anderson Street, Durham, NC 27705. Except for assuring that owners sign a statement of nondiscrimination, off-campus property is in no way verified and neither the University nor its agents negotiate between owners and interested parties. The search for accommodations should begin as soon as possible after acceptance. A visit of two or three days will allow you the opportunity to make use of the off-campus service and to inspect personally the availabilities.

**Dining Facilities.** Duke University Food Services (DUFSS) operates a variety of dining facilities, including cafeterias, snack bars, restaurants, salad bars, and more. Students may make food purchases in DUFSS establishments with cash, or they may choose to open a pre-paid account. Information about the various types of accounts is available from the Auxiliary Services Contract Office, 024 Union West, Duke University, Durham, North Carolina 27706 919/684-5800.

Cafeterias operated by the hospital are available both in the medical center and the Veterans Administration Medical Center.

**Student Financial Aid.** Duke University recognizes the responsibility of students and their families to provide funds according to their ability to achieve the educational objective. Students are encouraged to pursue every available source of support through their local and state student assistance programs.

All programs are approved for veterans education benefits (G.I. bill) for those who are eligible. Some of the programs have limited student support available through stipends or special scholarships.

Financial aid is available through Duke in limited amounts in the form of loans. When all institutional funds are pooled, the amount available to a totally needy student is inadequate to meet the school's recognized costs. Duke University is a lender under the Federally Insured Guaranteed Student Loan Program. A Financial Aid Form (FAF) or a Graduate and Professional Schools Financial Aid Service (GAPSFAS) form from applicants and their parents (and spouse, if applicable) is required in addition to the Duke University Financial Aid Application. A copy of the student's (and spouse's, if applicable) federal income tax return for the previous taxable year is required. In the case of the dependent student, a copy of the parent's federal income tax return for the last taxable year is also required. Duke University reserves the right to decline to approve loan applications for those applicants who do not have a satisfactory credit history. U.S. citizenship or permanent residence visa is required of all students receiving loans through the school.

It is the responsibility of recipients of financial aid to keep the Medical Center Office of Financial Aid informed of any outside financial assistance they may receive. It must be understood that Duke reserves the right to reconsider its offer of financial assistance in the event of a major outside award to a recipient. No financial aid funds may be used during a period when the recipient is not involved with work toward the degree or certificate. Part-time or special students are not eligible for financial aid.

Students who have been accepted for matriculation routinely receive financial aid applications. Annual reapplication is required of all financial aid recipients.

*Pell Grant* (formerly BEOG) is a federally funded grant for students with financial need who have not earned a baccalaureate degree and are enrolled in any postsecondary educa-

tional program. To apply the applicant completes a Financial Aid Form (FAF) which may be obtained from a high school guidance counsel or or any financial aid office.

*North Carolina Student Incentive Grant (NCSIG)* is available to residents of North Carolina who are enrolled in any postsecondary educational program in North Carolina. The applicant must demonstrate substantial financial need and must not have earned a baccalaureate degree. Application deadline is 1 March for the following academic year. To apply the applicant completes a Financial Aid Form (FAF) requesting that the information be sent to College Foundation, Inc., 1307 Glenwood Avenue, Raleigh, North Carolina 27605. FAFs may be obtained from a high school guidance counselor, or financial aid office.

*North Carolina Legislative Tuition Grant* is a direct grant of \$1,050 from the state to each North Carolinian enrolled in a private educational institution in North Carolina who is studying toward the first baccalaureate degree. No application is required.

*North Carolina Student Loan Program for Health, Science, and Mathematics.* These loans provide financial assistance to North Carolina residents who demonstrate need as determined by the board. Loans are available for study in the medical fields, mathematics, and science programs that lead to a degree. The applicant must be a domiciliary of North Carolina and accepted as a full-time student in an accredited associate, baccalaureate, master's, or doctoral program leading to a degree. Loan recipients in professional or allied health program may cancel their loans through approved service in shortage areas, public institutions, or private practice. Medical students may receive up to \$7,500 per year for each of the four years; master's degree students are eligible for two loans of up to 5,000 each; bachelor's degree students are eligible for three loans of up to \$4,000 each. For application forms and more information write: Executive Secretary, Board for Need-Based Student Loans, 116 West Jones Street, Raleigh, North Carolina 27605, or telephone (919) 733-2164.

Every effort will be made to assist the student with tuition and living expenses within the framework of school policies which may be in effect at the time. However, as funds are limited, prior indebtedness will not be given favorable consideration as part of the student's budget. A financial aid brochure and student budget for each allied health program are available, upon request, in the spring of each year. Any applicant having further questions may write to the Administrator, Financial Aid, 126 Davison Building, Box 3005, Duke University Medical Center, Durham, North Carolina 27710.

**Student Health Service.** Student health service, health insurance, and counseling and psychological services, fully described in an earlier portion of this bulletin are available to all allied health students.

**Athletic Events.** All students paying the full Duke University undergraduate tuition are issued Duke University identification cards and may attend all home intercollegiate athletic contests on a first-come, first-served basis. Graduate students and those enrolled in certificate programs may purchase a book of tickets for regular season home football and basketball games. All tickets are sold on a first-come, first-served basis. The ticket office is located in Cameron Indoor Stadium.

**Judicial System and Regulations.** Duke University expects and requires of all its students full cooperation in developing and maintaining high standards of scholarship and conduct. Each student is subject to the rules and regulations of the University which are currently in effect or which are, from time to time, put into effect by the appropriate authorities of the University. At the same time, the individual is responsible for decisions and choices within the framework of the regulations of the community as Duke does not assume in loco parentis relationships.

Any student, in accepting admission, indicates a willingness to subscribe to and be governed by these rules and regulations and acknowledges the right of the University to take such disciplinary action, including suspension or expulsion, for failure to abide by these regulations or for other conduct adjudged unsatisfactory or detrimental to the

University. A copy of the Allied Health Judicial System including a code of ethics, rules of conduct, and judicial procedures will be provided each student.

**Fees for Transcripts.** Requests for transcripts of academic records should be directed to the Office of the Medical Center Registrar. A minimum fee of \$2, payable in advance, is charged for each copy.

**Student Health Fee.** All regular full-time students and part-time degree candidates (undergraduate, graduate, and professional) are required to pay the health fee that is non-refundable after the first day of classes in the semester. The student health fee entitles the student to outpatient treatment through the Student Health Service, inpatient treatment in the Infirmary, and use of Counseling and Psychological Services. The health fee is not to be confused with the Duke Student Accident and Sickness Insurance (the premium for this insurance is minimized due to the existence of the Student Health Services) which covers a large number of medical costs above and beyond the treatment available through the Student Health Services. The identification of a separate student health fee in no way changes the policy concerning the Student Accident and Sickness Insurance. Student Health brochures are available in the Bursar's Office and in the Student Health Service Clinic.

**Student Accident and Sickness Insurance.** At time of matriculation, students must provide proof of coverage under an accident and sickness insurance policy, accept responsibility for payment of any medical expense, or purchase the Duke Student Accident and Sickness Insurance policy. This insurance policy provides protection twenty-four hours per day during the twelve-month term of the policy of each student insured. Students are covered on and off the campus, at home, or while traveling between home and school and during interim vacation periods.

## Refunds

If a student withdraws, tuition is refunded according to the following schedule:

<b>Withdrawal from the Baccalaureate Program</b>	<b>Refund</b>
Before classes begin	Full amount
During first or second week	80%
During third to fifth week	60%
During sixth week	20%
After sixth week	None
<b>Withdrawal from Certificate Programs*</b>	<b>Refund</b>
Before classes begin	Full amount
During first week	80%
After first week of classes	None

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\*Course fees for students in certificate programs are payable on a yearly basis.



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*Bachelor of Health Science  
Degree Program*





## Grading and Grade Requirements

Final grades on performance in academic work are sent to students after the examinations at the end of the fall and spring semesters.

**Passing Grades.** Passing grades are *A*, exceptional; *B*, superior; *C*, satisfactory; and *D*, low pass. A passing grade may be modified by a plus or minus. A *Z* may be assigned for the satisfactory completion of the first semester of a two-course sequence. This permits an instructor to assign an earned grade for the entire year during the grading period for the second course of the sequence.

**The D Grade.** Although the *D* grade represents low pass, no more than two courses passed with *D* grades may be counted among the thirty-two courses required for graduation.

**Failing Grades.** A grade of *F* or *U* (see pass/fail option below) indicates that the student has failed the course, which is recorded on the student's record. If the course is taken again, a second entry of the course and the new grade earned is made on the record, but the first entry is not removed.

**Pass/Fail Grading Option.** With the consent of the instructor and program director, a student may choose to be graded on a pass/fail basis in one elective course each semester or summer session.

A student enrolling in a course on a pass/fail basis completes all the work of the course but receives either a pass, (*P*), or fail, (*U*), in lieu of a standard grade. After the first two weeks of classes in any semester, no student may change to or from a pass/fail basis. A pass grade may not subsequently be converted to a regular letter grade nor may the course be retaken on a regular credit basis.

**Grades When Absent from Final Examination.** In all cases in which a student is absent from a final examination, an *X* is received instead of a final grade. If the student does not present an acceptable explanation for the absence to the Office of the Dean within forty-eight hours after the scheduled time of the examination, the *X* is converted to an *F*. If the absence is excused by the Dean the student arranges with the instructor for a make-up examination. An *X*, not cleared by the end of the semester following the examination missed, is converted to an *F*. See the section on Final Examinations and Excused Absences.

**Grades for Incomplete Work.** If because of illness or other emergency a student's work in a course is incomplete, an *I* may be received for the course instead of a final grade. Incomplete courses must be completed before the close of the succeeding semester; otherwise, the *I* is converted to an *F*. Seniors must complete all courses before graduation. A student whose work is incomplete and who is also absent from the final examination receives an *X* for the course.

For the purpose of determining if a student satisfies continuation requirements, an *I* is counted as failing to achieve satisfactory performance in that course.

## Graduation and Continuation Requirements

**Continuation Requirements.** A student must achieve a satisfactory record of academic performance and make satisfactory progress toward graduation each semester. To remain in the University a student must not fail two or more courses in any semester. A student who, for any special reason, has been permitted to enroll for three or fewer courses must pass all courses.

Students are reminded that in cases where continuation is in question, incomplete work in any course is counted as a failure to achieve satisfactory performance in that course. Such courses must be completed in time for final grades to be submitted to the Registrar no later than the day preceding the opening of the spring semester or 15 June in the summer. Any student excluded under the provisions of this regulation may request to have the case reviewed by the Dean of Medical Education.

**Requirements for Degree.** To be graduated a student must pass a minimum of thirty-two courses (including the sixteen courses required for admission) and all courses prescribed in the program of study. Of the courses required for graduation, no more than two courses with *D* grades will be accepted.

**Residence Requirements.** At least sixteen semester-courses must be completed satisfactorily at Duke. This must include the final four semesters.

## Commencement

Graduation exercises are held once a year in May, when degrees are conferred on, and diplomas issued to those who have completed requirements by the end of the spring semester. Those who complete degree requirements by the end of a summer term or the end of a fall semester become eligible to receive diplomas dated 1 September or 30 December, respectively. There is a delay of about one month in the mailing of September and December diplomas because the diplomas are mailed after final approval by the Academic Council and the Board of Trustees. Any persons who receive diplomas dated 1 September or 30 December may return for the commencement weekend and participate in the graduation exercises in May following the date of the diploma.

## Eligibility for Academic Honors

To determine eligibility for academic honors, only letter grades earned at Duke, with the exception of the *P* (pass) grade, enter into the calculation of the average.

**Graduation Honors.** Full-time or part-time students who earn the following averages for all work taken at Duke are graduated with honors: a 3.3 average earns a degree *cum laude*; a 3.6 average earns a degree *magna cum laude*, and an average of 3.8 or above earns a degree *summa cum laude*.

## Course Information

The unit of credit for academic work is the semester-course. Double-courses and half-courses are recognized.

**Transfer Credit.** Duke credit may be granted for course work satisfactorily completed at other regionally accredited, degree-granting institutions. Courses in which grades of less than C have been earned are not accepted for transfer credit. Semester-course credit awarded at Duke for satisfactorily completed courses cannot, of course, be directly equated with semester-hour or quarter-hour credits. A semester's work accepted as a normal

course load by the other institution transfers as a block of four course units at Duke, provided the courses taken at the other institution are acceptable by Duke as Duke course equivalents or electives. Ordinarily, transfer students will not be awarded more than four course units for one semester's work unless they have satisfactorily completed more than the normal course load at the institution from which they transferred. All courses approved for transfer credit are listed on the student's permanent record at Duke (unless the student has received a degree) but grades earned in such courses are not recorded. Courses taken at other institutions are evaluated by the Medical Center Registrar.

Students who transfer to Duke may receive credit for a maximum of two years of work at other institutions of approved standing. No credit is given for work completed by correspondence, and credit for no more than two semester-courses is allowed for extension courses.

**Course Load and Eligibility for Courses.** The normal and expected course load each semester is four to five semester-courses. To take fewer than four or more than five semester-courses in any semester, a student must have the approval of the program director and the Dean. No student, however, may take more than six courses in any semester.

**Course Audit.** With the written consent of the instructor and the program director, a full-time degree student is allowed to audit one or more courses in addition to the normal program. After the first two weeks of classes in any semester, no student classified as an auditor in a particular course may take the course for credit, and no student taking a course for credit may change classification to an auditor. A student may not repeat for credit any course previously audited. Auditors submit no daily work, take no examinations, and receive no credit for courses.

**Course Changes after Classes Begin.** Students, with the approval of the program director, may drop and add courses during the first two weeks of classes. Courses added during the second week of classes require the approval of the appropriate instructor in addition to that of the program director.

Students may drop a course without penalty until the time midsemester grades are assigned if they are clearly carrying a course overload. Factors such as poor health or necessary outside work are also considered in permitting withdrawal from courses without penalty. A W is entered on the permanent record in lieu of a grade in all cases where withdrawal without penalty is approved. After the time limit has expired, withdrawal from any course will ordinarily result in a grade of F. Courses discontinued prior to midsemester without approval will also be assigned an F.

## **Class Attendance and Excused Absences**

Responsibility for class attendance rests with the individual student. Students are expected to attend classes regularly and punctually and must accept the consequences of failure to attend. An instructor is privileged to refer students to the Dean for suitable action if, in the opinion of the instructor, their work or that of the class suffers because of absences. When excessive absences result in a student's failure to carry a normal course load, the Dean, after a conference with the student, will determine whether the student may continue enrollment in the college.

Absences from required classes and tests ordinarily are excused only for illnesses certified by a proper medical official of the University, and for authorized representation of the University in out-of-town events. Officials in charge of groups representing the University in such events are required to submit names of students to be excused to the Office of the Dean forty-eight hours before absences are to begin.

## Final Examinations and Excused Absences

Customarily, an examination is the final exercise in an undergraduate course, but it is understood that not all courses profit from this process. Therefore, unless departmental policy stipulates otherwise, the conduct of the final exercise is determined by the instructor, except that a final written examination may not exceed three hours in length and a final take-home examination may not require more than three hours in the actual writing.

Absences from final examinations are excused by the Dean only in exceptional circumstances, such as illness certified by a medical official of the University or other conditions beyond the control of the student. A student who misses a final examination must notify the Office of the Dean within forty-eight hours after the scheduled time of the examination. Failure to so notify and to present an acceptable reason for absence from the examination will result in the student's receiving an *F* in the course.

## Changes in Status

**Withdrawal and Readmission.** A student who wishes to withdraw from the University must give official notification to the Dean. Withdrawals at student initiative prior to the Thanksgiving recess in the fall semester or prior to 15 April in the spring semester are coded as voluntary, and a *W* is entered in lieu of a grade for each course. Voluntary withdrawals after these dates are permitted only in the event of emergencies beyond the control of the student.

Applications for readmission are made to the Medical Center Registrar. Each application is reviewed by the admissions committee of the program to which the student applies. A decision is made on the basis of several criteria including the applicant's academic record at Duke, the prospects of completing requirements for graduation, the student's citizenship record at Duke, evidence of increasing maturity and discipline, the degree of success attendant upon activities during the time away from Duke, and finally the applicant's relative standing among the group of students applying for readmission.

**Leave of Absence.** A student in good standing may apply in writing to the Dean to take a leave of absence for one or two semesters. The application must come before the end of the fall semester for a leave of absence during the spring semester, and before 15 July for a leave of absence during the fall semester. If the leave is approved, the student must keep the Dean informed of any change of address.

**Full-Time and Part-Time Degree Status.** Normally, undergraduate students who are candidates for degrees are expected to enroll for a normal course load each semester. A student who needs to change from full-time status, or from part-time to full-time status, must have the approval of the program director and the Dean. For special reasons approved by the program director and the Dean, a full-time degree student who is qualified to continue may register in a part-time degree status for no more than two courses.

## Admission

Students seeking admission to the Bachelor of Health Science degree program must have completed two years of study at an accredited institution. In addition, they must have a minimum of sixteen course equivalents (sixty semester-hours/ninety quarter-hours) of transferable credit including at least one course in English, three in natural science, three in social sciences or history, and one in humanities. Additional requirements are listed in the description of the program.

## Other Information

**Release of Student Records.** No confidential information contained in student records (academic or otherwise) is released to non-University persons or to unauthorized persons

on the campus without the consent of the student. Consent is evidenced by each student's signing a form which authorizes the release of personal data. The form may provide for the release of information to one or more persons or agencies only, or it may be a blanket release. Blank forms to authorize or revise the permission are available in the office of the program directors.

**Identification Cards.** Undergraduate students are issued identification cards which they should carry at all times. The cards are the means of identification for library privileges, University health services, athletic events, and other University functions or services open to them as University students. Students will be expected to present their cards on request to any University official or employee.

The cards are not transferable, and fraudulent use may result in loss of student privileges or suspension. A student should report the loss of this card immediately to the Registrar's office. The cost of a new identification card is \$5.

**Payment of Bursar Accounts for Fall and Spring.** Monthly invoices for tuition, fees, and other charges will be sent by the Bursar's office and are payable by the invoice due date; no deferred payment plans are available. As a part of the agreement of admission to Duke University a student is required to pay all invoices as presented. If full payment is not received, a late payment charge as described below will be assessed on the next invoice and also certain restrictions as stated below will be applied.

*Late Payment Charge.* If the total amount due is not received by the invoice due date, the next invoice will reflect a penalty charge of 1% percent assessed on to the past due balance. The past due balance is defined as the previous balance less any payments and credits received on or before the due date and also any student loan memo credits, related to the previous balance, which appear on the invoice. The amount of the 1% percent penalty charge will be the same regardless of the number of days payment is received after the due date.

*Restrictions.* An individual will be in default of this agreement if the total amount due on the student invoice is not paid in full by the invoice due date. An individual who is in default will not be allowed to register for classes, receive a transcript of academic records, have academic credits certified, be granted a leave of absence, or receive a diploma at graduation. In addition, an individual in default may be subject to withdrawal from school.

## Tuition and Fees\*

**Estimated Expenses for an Academic Year.** Certain basic expenditures such as tuition, board, and room are to be considered in preparing a student's budget. For the Bachelor of Health Science program the estimated expenses are:

Tuition	\$8,750 first year; \$8,250 second year*
Books, uniforms, and supplies	\$900 per year
Food	\$230 per month
Laboratory Fee	\$250
Lodging	\$280 per month
Student Health Fee	\$119 per semester
Student Accident and Sickness Insurance	\$225 per year (single) \$632 per year (married)
Miscellaneous (travel, laundry, clothing, etc.)	\$235 per month

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\*These are estimated figures only. Tuition and fees are subject to change without notice.

**Registration Fees and Deposits.** On notification of acceptance, baccalaureate degree students are required to pay a nonrefundable first registration fee of \$30. Students in the



Physician Assistant Program are required to make a deposit of \$75. The deposit will not be refunded to accepted applicants who fail to matriculate. For those who do matriculate, the deposit is applied to the cost of tuition.

**Late Registration.** Students who register in either semester at a date later than that specified by the University must pay to the Bursar a fee of \$25.

**Part-time Students.** In the regular academic year, students who register for no more than two courses in a semester are classified as part-time students. Part-time students are charged at the following rates: One course, \$740; half-course, \$370. Registration for more than two courses requires payment of full tuition.

**Auditors.** Auditing of one or more courses without charge is allowed students paying full fees, provided that the consent of the instructor is obtained.

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*Physician Assistant Program*





Duke University Medical Center awards a Bachelor of Health Science degree to students who complete the Physician Assistant Program.

## Physician Assistant Program

### PHYSICIAN ASSISTANT PROGRAM ADMINISTRATION

Chairman: George R. Parkerson, Jr., M.D., *Department of Community and Family Medicine*  
Program Director: Reginald D. Carter, Ph.D., PA, *Associate Professor of Community and Family Medicine*  
Medical Director: Michael Hamilton, M.D., *Assistant Professor of Community and Family Medicine*  
Assistant Program Director: Patricia M. Dieter, PA-C, MPA, *Clinical Associate*  
Clinical Coordinator: Philip Price, PA-C, *Clinical Associate*  
Educational Coordinator: J. Victoria Scott, PA-C, *Clinical Associate*  
Surgical Coordinator: Paul Hendrix, PA-C, *Medical Research Associate*  
Pediatrics Coordinator: Mary Austin, PA-C  
Minority Affairs Coordinator: Lovest T. Alexander, Jr., PA-C

### TEACHING STAFF AND FACULTY

Michael A. Hamilton, M.D., *Patient Assessment*; Reginald D. Carter, Ph.D., PA, *Basic Medical Sciences*; Patricia M. Dieter, PA-C, *Physical Diagnosis, Patient Assessment, Perspectives on Health*; J. Victoria Scott, PA-C, *Clinical Medicine, Physical Diagnosis, Perspectives on Health, Geriatrics*; Philip Price, PA-C, *Patient Assessment, Perspectives on Health, Surgery (ACLS), Physical Diagnosis*; Katherine Halpern, PA-C, *Anatomy and Physical Diagnosis*; Max Isbell, PA-C, *Anatomy and Physical Diagnosis*; Rivka Gordon, PA-C, *Physical Diagnosis, Patient Assessment*; Paul Hendrix, PA-C, *Anatomy, Fundamentals of Surgery*; Mary Austin, PA-C, *Introduction to Pediatrics*; Joseph Kertesz, M.A., *Behavioral Medicine*; Suydam Osterhout, M.D., *Microbiology*; Margaret Schmidt, Ph.D., MT(ASCP)SH, CLS(NCA), CLSpH(NCA), *Medical Technology*; Iris W. Long, MT(ASCP), M.A.T., *Laboratory Sciences*; Caroline Chiles, M.D., *Radiology*; Kathryn Bucci, Pharm.D., *Pharmacology*; Joseph C. Greenfield, M.D., *Professor and Chairman, Department of Medicine, and Staff, Internal Medicine*; David Sabiston, M.D., *Professor and Chairman, Department of Surgery, and Staff, Surgery*; Samuel Katz, M.D., *Professor and Chairman, Department of Pediatrics, and Staff, Pediatrics*; Bernard J. Carroll, M.D., Ph.D., *Professor and Chairman, Department of Psychiatry, and Staff, Psychiatry and Behavioral Sciences*; E. Harvey Estes, M.D., *Family Medicine*; George R. Parkerson, Jr., M.D., *Community Medicine*. In addition to the above, the program calls upon teaching resources of affiliated community practitioners and members of the Departments of Medicine, Surgery, Obstetrics/Gynecology, and Pediatrics.

In 1965 Duke University Medical Center began an innovative program designed to prepare highly educated and well-trained assistants for physicians. The program originated when clinicians at the Medical Center realized that they could enhance their productivity by safely and effectively delegating many of their tasks and responsibilities to non-physicians, primarily ex-military corpsmen with previous health-related education and experience. Dr. Eugene A. Stead, Jr., then Chairman of the Department of Medicine at Duke, recognized the potential of the corpsmen experience and concluded that paramedical personnel might be trained to provide primary health care under the supervision of

a physician. In developing the Department of Community and Family Medicine, Dr. E. Harvey Estes, Jr. foresaw that midlevel practitioners would help increase consumer access to health services, and extend the time and skills of the physician in providing comprehensive health care.

The physician assistant possesses a broad understanding of medicine and health care. Men and women are chosen for the program on the basis of their humanistic perspective, demonstrated commitment to providing health care, and their academic potential.

On completion of the two-year program, graduates are prepared to assist in the evaluation and management of common health problems, including both acute problems and chronic illnesses such as hypertension and diabetes. Recognizing the intrinsic relationship between emotional and physical health, the program stresses competence in the exploration of psychosocial concerns. Graduates are expected to have a basic fund of knowledge pertaining to health needs of infants and children, young and middle-aged adults, and geriatric patients. Physician assistants also provide patient care services such as diagnostic and therapeutic procedures, wound suturing, cast application, and basic laboratory procedures.

Upon successful completion of the program, Duke University Medical Center awards the student a Bachelor of Health Sciences degree and a Physician Assistant Certificate.

**Program of Study.** The curriculum is twenty-three consecutive months in duration and is designed to provide an understanding of the rationale for skills used in physical diagnosis and problem assessment. It focuses primarily upon the common problems seen in ambulatory care settings, so that the student is able to utilize and understand the various diagnostic, therapeutic, and supportive measures used by the primary care physician. The first ten months are devoted to the basic medical and behavioral sciences and the remaining thirteen months to clinical training in a variety of practice settings. The rigorous curriculum requires people who have had college level education and experience in a health-related discipline.

The preclinical curriculum is integrated in such a way as to introduce the student to medical sciences as they relate to clinical problems. Learning strategies include self-instructional study guides, teaching patients, lectures, seminars, laboratories, and small-



group encounters. Clinical medicine and patient evaluation are taught using the problem-oriented medical record format. The psychosocial aspects of clinical practice are emphasized as well as the physical aspects of disease processes.

As part of the clinical practicum students are required to take rotations in inpatient medicine, surgery/emergency services, family medicine, pediatrics, obstetrics/gynecology, and behavioral medicine. The final ten weeks of clinical training is spent away from Duke in a community setting.

Because the clinical teaching is carried out in many practice settings, students should plan on being away from the Durham area for part of their clinical experience.

**Curriculum.** Before proceeding into the clinical phase of the curriculum, students must satisfactorily complete the following:

### Preclinical Schedule

<i>Fall Semester</i>		<i>Course Weight</i>
CFM 102	Basic Medical Sciences	1
CFM 103	Clinical Medicine	1
CFM 112	Anatomy and Physical Diagnosis	1
CFM 114	Patient Assessment I	1
PTH 115	Clinical Diagnostic Procedures	1
		<u>5</u>
<i>Spring Semester</i>		<i>Course Weight</i>
CFM 104	Clinical Medicine II	1½
CFM 115	Patient Assessment II	½
CFM 106	Behavioral Aspects of Medicine	1
MIC 101	Introductory Microbiology	½
SUR 101	Fundamentals of Surgery	1
		<u>5</u>
<i>Summer Term 1</i>		<i>Course Weight</i>
CFM 105	Introduction to Pediatrics	1

After satisfactory completion of all basic science courses, students must complete the following:

### Clinical Schedule

MED 150. General Medical Inpatient Service	2 courses	8 weeks
SUR 150. General Surgery	1 course	4 weeks
SUR 151. Outpatient/Emergency Surgical Service	1 course	4 weeks
OBG 150. Obstetrics and Gynecology	1 course	4 weeks
PED 150. Pediatrics	1 course	4 weeks
CFM 151. Family Medicine	1 course	4 weeks
CFM 152. Behavioral Medicine	<u>1 course</u>	<u>4 weeks</u>
	8 courses	32 weeks

In addition to the above courses required for the B.H.S. degree, students must complete:

Four elective courses required for certificate	16 weeks
	Subtotal: 48 weeks
Final Preceptorship†	<u>6 weeks</u>
	Total: 54 weeks

†This rotation is taken only during the summer of the last year. Prerequisites for admission.

**Prerequisites for Admission.** To be eligible for the Bachelor of Health Sciences program, applicants must complete by 15 January (the application deadline) 60 semester-hours of college credit from an institution whose credits are transferable to Duke University and which include one English course, one humanities course, three courses in the social sciences, and three courses in the natural sciences (two of which must be chemistry and biology). Of equal importance to the academic requirement is a minimum of six months of health care experience. This experience should involve direct patient contact

and may be gained as a nurse, patient care assistant, military corpsman, or in other related fields such as medical technology, physical therapy, emergency medical technology, and counseling in health-related fields.

**Application Procedures.** Application materials and course bulletins are mailed to prospective applicants from 1 June through 15 December each year. Applications are accepted by the University no earlier than 1 September and no later than 15 January for the new class which enters in late August each year. Applications must contain:

1. a completed Duke University Medical Center Allied Health application form, including a nonrefundable fee of \$35;
2. official transcripts from all colleges or other academic institutions attended;
3. Scholastic Aptitude Test Scores of the College Entrance Examination Board, if already taken;
4. three letters of recommendation, to include one from an immediate supervisor and one from a physician with whom the applicant has worked;

**Selection Factors.** The program has a specific interest in enrolling students from diverse social, ethnic, and educational backgrounds. Emphasis is placed upon personal maturity, quality of health care experience, dedication to the health field, and intellectual capacity. Information submitted by each applicant is carefully reviewed by the Committee on Admissions, and selected applicants are invited to Duke University for personal interviews. These interviews take place in mid-January, mid-February and mid-March of each year; students are chosen from among those interviewed. All applicants will be notified by 15 April regarding admission to the program. Requests for application forms and information should be directed to the Coordinator of Admissions, Physician Assistant Program, P.O. Box CFM-2914, Duke University Medical Center, Durham, North Carolina 27710.

**Financial Aid.** The financial aid office works closely with students to secure loans. Due to the limited amount of money available, requests are considered individually and approved on the basis of financial need. Part-time employment for students is available in many areas of the Medical Center. Frequently such employment may net students about \$200 per month and yet not jeopardize their education. Students must comply with the academic schedule and are prohibited from working more than twenty hours per week.

## Courses of Instruction

Courses numbered from 150 through 189 either list specific prerequisites or have as prerequisite the completion of the junior year in one of the programs.

Double numbers separated by a hyphen indicate that the course is a year course and must normally be continued throughout the year if credit is to be received.

### COMMUNITY AND FAMILY MEDICINE

**CFM 101. Perspectives on Health.** A professional issues review. This course emphasizes current issues facing the profession, including legal and ethical problems, and the unique place of the PA within the health care system.

**CFM 102. Basic Medical Sciences** provides students the basic facts, concepts, and principles that are essential to understanding the fundamental mechanisms of human physiology, pathology, pharmacology, and nutrition. Upon completion of clinically-related problems and to advance into the clinical medicine course with sufficient knowledge to understand the underlying principles of the etiology, management, and prevention of various systemic disease processes. *Carter and Bucci*

**CFM 103-104. Clinical Medicine** presents basic material around which most other courses are organized. The course is organized into units proceeding through body systems, and combines material from anatomy, physiology, pharmacology, pathology, radiology, nutrition and clinical medicine. Units are divided into smaller modules which are objective-oriented, and learning is evaluated by unit tests addressed to these objectives. Students read reference material individually and attend lecture presentations during which basic scientists, practicing physicians and physician assistants explore important content areas in more depth. Emphasis is placed on topics pertinent to evaluation of health problems at the primary care level. *Scott, Alexander, and Chiles*

**CFM 105. Introduction to Pediatrics.** The purpose of this course is to introduce students to clinical problems commonly seen in ambulatory pediatrics. Through lectures and demonstrations, students learn basic concepts and practical approaches to the maintenance of health and the management of illness in infants and children. In small group sessions, students develop skills necessary to assess the normal development of children and to define an appropriate data base for specific clinical problems. Physical assessment and diagnostic techniques are demonstrated. The psychological, pharmacological, and nonpharmacological management of pediatric patients are discussed. This course is taught by members of the Department of Pediatrics. One course. *Austin and staff*

**CFM 106. Behavioral Aspects of Medicine.** This course presents an extensive view of human behavior while concurrently developing skills that facilitate interpersonal awareness and psychological intervention. *Kertesz*

**CFM 112-113. Anatomy and Physical Diagnosis.** This course is taught by the program staff and clinicians from the Department of Surgery and Medicine. Students learn functional and applied anatomy as it applies to physical diagnosis and common clinical findings. Teaching methods for the anatomy component of the course include lectures, cadaver prosections, and audiovisual materials. Physical diagnosis is taught primarily through supervised practice of physical diagnosis skills. One course. *Hendrix, Scott, Price, Dieter, Halpern, Isbell, Gordon, and staff from the Departments of Medicine and Surgery*

**CFM 114-115. Patient Assessment.** This course is taught by the program staff and clinicians from the Department of Medicine. Students learn and practice skills in medical interviewing and physical assessment, clinical decision making, and the accurate and efficient recording and presentation of clinical information. Teaching methods include lectures, small group seminars, role playing, and the supervised examination of patients. One and one half courses. *Price, Dieter, and staff from the Department of Medicine*

**CFM 150. General Community Medicine.** During this rotation students spend time with physicians in community practice, observing and participating in both office-based and hospital care. Students gain experience in doing both problem-specific and complete evaluations and through follow-up visits have an opportunity to monitor the results of therapy. Students learn to appreciate the impact of a patient's total environment on their health status. One or two courses. *Staff*

**CFM 151. Family Practice.** A four-, or eight-week clinical experience surveying the components of family practice, including emotional conflicts and interpersonal relationships with the patient and other members of the family unit. Through experience in interviewing and examining patients, the student is exposed to the multi-faceted approach of understanding and treating physiologic and sociologic components of disease processes. In this situation, an understanding of the common diseases treated by primary care practitioners and the aspects of the unique relationship a physician's associate experiences with private patients, their physician, and other health team members is developed. One or two courses. *Warburton and staff*

**CFM 152. Behavioral Medicine.** A four-week clinical experience in behavioral sciences. Four days each week are spent at a facility involved in the treatment of behavioral disorders (i.e., community psychiatry, inpatient psychiatry, outpatient psychiatry, alcoholism treatment, etc.). Students learn and participate in the diagnosis and treatment of patients cared for at that site. One day each week is spent in a seminar reviewing interviewing skills and selected topics related to the patients seen at the various sites. One course. *Kertesz and staff*

**CFM 180. Final Preceptorship.** This rotation is required of all students during the final six weeks of their training and provides a transition between the role of the student and graduate physician's associate. Students are encouraged to select a preceptor in the area of their anticipated employment and, during this period of time, to explore the tasks and team aspects of functioning as a midlevel practitioner. Students will provide health services consonant with their backgrounds, clinical experiences, and the needs of the particular practice setting. Required for certificate. Two and one-half courses. *Price, Hamilton, and staff*

**CFM 191. Independent Study.** This special four-week course enables students to select individually with program administrators a series of objectives and to develop a program that can reasonably be expected to achieve those objectives. One course. *Estes, Hamilton, and staff*

## MEDICINE

**MED 150. Inpatient Medicine.** An eight-week full-time required clinical rotation in which the student learns to apply basic medical knowledge to the problems and situations encountered on an inpatient service. By collecting a data base, formulating a complete problem list, participating in daily rounds, and participation in the management of patient problems, the student develops an awareness and understanding of the multiple aspects of disease processes and becomes familiar with therapeutic regimen and dispositions relative to specific disease states. The student will present the data base of each new patient to the supervising physician or attending rounding physician in a coherent, concise fashion. Two courses. *Staff*

**MED 151. Outpatient Medicine.** During this rotation, the student learns to apply basic medical knowledge to the common problems and situations encountered on an outpatient/emergency service. Experience may include long-term follow-up of patients with chronic disease, emergency triage and management, and evaluation of acute self-limited problems. This rotation occurs in an institutional as opposed to a private setting. One or two courses. *Staff*

**MED 152. Intensive Care.** A four-week rotation that acquaints the student with the acute and intensive care required for patients who have undergone major and complex surgical procedures, suffered massive and severe trauma, cardio-respiratory collapse, or other life-threatening medical crises. Emphasis is placed on ventilatory assistance, cardiopulmonary resuscitation, fluid and electrolyte replacement, and acid-base balance under resident physician supervision. One course. *Staff*

**MED 153. Cardiology.** During the rotation students will become familiar with the presentation, evaluation, and management of cardiovascular disorders, including acute and chronic problems. Students will gain experience performing the medical history and physical examination and will learn appropriate diagnostic procedures and therapeutic regimens, including drug therapy, alterations in life patterns (smoking, diet, exercise, etc.), and surgical intervention. One or two courses. *Cardiology staff*

**MED 155. Endocrinology.** A four- or eight-week rotation designed to acquaint the student with endocrinological diseases. The emphasis is placed on obtaining the defined endocrine data base and appropriate treatment of the disease. Students attend all daily

rounds and conferences while on the service. They are taught the indications, limitations, and methods of performing diagnostic procedures including: glucose, tolbutamide, and arginine tolerance tests; thyroid function tests; and urinary steroid determinations. Students help educate patients with endocrine diseases about their disease processes, diagnostic evaluations, and therapies. One or two courses. *Endocrinology staff*

**MED 156. Gastroenterology.** During this four- or eight-week rotation students study the diagnosis, pathophysiology, and essentials of therapy of various gastroenterologic problems. They learn to perform and interpret the following diagnostic procedures: nasogastric intubations and gastric analyses (both with and without fluoroscopy), secretin tests, rectal and small bowel biopsies, proctoscopies, sigmoidoscopies, and gastroscopies. They also learn to care for endoscopic and biopsy instruments and biopsy specimens. One or two courses. *Gastroenterology staff*

**MED 157. Hematology-Oncology.** During this four- or eight-week rotation the students become familiar with the presentation of hematologic and oncologic problems, including many which are serious and life-threatening. A major objective for the student will be learning to relate supportively to the feelings and needs of terminally ill patients. The student will also gain experience with various diagnostic procedures, including white cell differential, bone marrow aspiration, lumbar puncture, paracentesis and thoracentesis. Students will become familiar with the principles of blood transfusion. One or two courses. *Hematology staff*

**MED 159. Pulmonary Medicine.** A four- or eight-week rotation that provides an in-depth exposure to patients with respiratory conditions. The problems encountered by patients who have respiratory ailments are studied in detail as are the associated special history and physical examination techniques, diagnostic and therapeutic procedures. The student participates in daily rounds and teaching conferences on respiratory diseases and gains a knowledge of the therapeutic regimen, their indications, availability, reliability, and limitations in the treatment of respiratory and allergic diseases. One or two courses. *Pulmonary staff*

**MED 160. Nephrology.** During this four- or eight-week rotation, the student learns to gather and record information in a problem-oriented manner about patients with renal and hypertensive diseases. The student becomes able to recognize the effects of disease, therapy, and education on the patient's course and plays a major role in patient education. The fundamentals of renal function, urinalysis, radiography of the chest, urinary system and bones, and the principle of dialysis are covered. One or two courses. *Nephrology staff*

**MED 161. Neurology.** On this rotation, students learn about the presentation, evaluation, and management of patients with neurologic problems. The student develops an understanding of specialized history and physical techniques and diagnostic procedures, including electroencephalography, brain scan studies, pneumoencephalography, and central nervous system radiologic studies. Students also learn to relate supportively to patients whose symptoms may be frightening and/or have a serious prognosis. One or two courses. *Neurology staff*

**MED 162. Rheumatology.** This course provides the student with an in-depth exposure to rheumatologic disease. Students gain insight into the psychosocial adjustments necessitated by chronic, potentially disabling disease. Students also gain familiarity with diagnostic procedures, therapeutic regimens, and learn how to do a meticulous and thorough joint examination. One or two courses. *Rheumatic and genetic diseases staff*

**MED 163. Dermatology.** During this rotation students gain familiarity with major classes of dermatologic diseases, ranging from acute self-limited problems to malignant conditions. Sensitivity to the negative effects of cosmetic disfigurement is stressed. Stu-

dents gain experience with common diagnostic procedures and courses of treatment. One or two courses. *Tindall and dermatology staff*

**MED 165. Clinical Infectious Disease.** During this four-week rotation, the student learns to approach patients presenting with infectious diseases, to gather a database from them, and to understand the manifestations of the illnesses and the rationale for therapy. One course. *Staff*

**MED 191. Independent Study.** This course is intended to allow students with particular interests in an area of internal medicine to structure a need-specific learning experience. Independent studies are arranged with the program staff and appropriate clinical faculty. One or two courses. *Staff*

## MICROBIOLOGY

**MIC 101. Introductory Microbiology.** An introduction to diagnostic microbiology covering such topics as microbial morphology, staining characteristics, growth requirements, diagnostic tests, and antibiotic susceptibility testing. The clinical aspects of such subjects as pyogenic cocci, gram negative sepsis and nosocomial infection, meningitis, venereal disease, enteric infection, anaerobic pathogens, tuberculosis, mycotic diseases, viral infections, and the use of antibiotics are also included. One-half course. *Osterhout*

## OBSTETRICS AND GYNECOLOGY

**OBG 150. Obstetrics/Gynecology.** During this rotation students learn about the health, needs, and concerns of women. Students learn about pregnancy, including prenatal care and management of labor and delivery. The student is expected to be fully familiar with the normal course of pregnancy and with common complications in order to provide educated and sympathetic support for the prospective mother. Students will also gain experience with common gynecologic concerns, including cancer detection, abnormal menstruation and bleeding, infections, and sexual dysfunction. Familiarity with the effectiveness, indications, and contraindications of various forms of contraception is a further objective. One or two courses. *Staff*

## OPHTHALMOLOGY

**OPH 150. Ophthalmology.** This is a four- or eight-week rotation reviewing the major ophthalmologic disease. Through lectures, teaching rounds, and learning special history and physical examination techniques, the student develops an expertise in determining visual fields, visual acuity, and oculotometry. The principles of refraction and the many medical and surgical therapeutic regimens available for treating ophthalmologic disorders are included. The student is also required to participate in the routine care of ophthalmologic inpatients and outpatients. One or two courses. *Staff*

## PATHOLOGY

**PTH 115. Clinical Diagnostic Procedures.** Students develop skills for performing routine hematologic, urinary, and microbiological procedures suitable for emergency or office/clinic practice. Lectures and discussions are concerned with clinical interpretation and appropriate applications of laboratory data and physiologic derangements which frequently produce abnormal laboratory values. Basic principles of electrocardiography are presented also. A \$50 laboratory fee is required. One course. *Widmann, Schmidt, and Long*

## PEDIATRICS

**PED 150. Community Pediatrics.** The major objective of this rotation is to provide students with an overview of community pediatric practice. Students will gain familiarity with normal growth and development and developmental evaluation, pediatric preventive medicine, and evaluation and management of common childhood illnesses. Special



emphasis is placed on communication skills and relating sensitively to both children and parents. Each student will spend time in the newborn nursery and be involved with hospitalized patients. One or two courses. *Austin and staff*

**PED 152. Intensive Care.** A four-week rotation that acquaints the student with the acute and intensive care required for patients who have undergone major and complex surgical procedures, suffered massive and severe trauma involving multiple organ systems, or experienced sudden cardiorespiratory collapse or other life-threatening medical crises. Emphasis is placed on ventilatory assistance, cardiopulmonary resuscitation, fluid and electrolyte replacement, and acid-base balance under resident physician supervision. Prerequisite: PED 150. One course. *Staff*

**PED 153. Pediatric Chest and Allergy.** During this four- or eight-week rotation the student is taught to obtain a complete history and physical examination with emphasis on the allergy data base and the structure of the family. Students gain understanding of the impact of chronic illness on children and their families. They gain an understanding of home care programs and are able to alter them to fit a family's ability and resources. The student carries out appropriate diagnostic procedures and assesses the results for children with pulmonary disease. One or two courses. *Staff*

**PED 154. Full-Term Nursery.** During this four- or eight-week rotation the student learns to collect the maternal history accurately and completely; to recognize those maternal conditions imposing risks on the full-term infant; to collect samples for newborn screening laboratory exams; to examine a full-term infant and distinguish those who are abnormal from those who are normal; and to give cogent instructions to mothers and fathers regarding home care of the infant. One or two courses. *Staff*

**PED 191. Independent Study.** This rotation allows students with a particular interest in an area of pediatrics to construct their own need-specific learning experience. PED 191 is arranged with the program staff and appropriate clinical faculty. One or two courses. *Staff*

## **SURGERY**

**SUR 101. Fundamentals of Surgery.** This course has been recently redesigned to better focus on the needs of P.A.s in primary care settings. While including the basic concepts needed for P.A.s to function well in a major surgical setting, the course emphasis is on building expertise in the areas of minor surgical techniques, emergency procedures, and the surgically related skills needed in general medicine. Included in the lecture, laboratory, and skill sessions will be a wide variety of topics from anesthesia and asepsis to venipuncture. The students will learn first assisting, suturing, casting, various intubations, and will be certified in basic CPR. The final eight weeks of the course will emphasize work in the Animal Surgery Laboratory. One course. *Hendrix and staff*

**SUR 150. General Surgery.** A four or eight-week rotation that exposes the student to a great variety of clinical problems, crossing, at times, many so-called specialty lines. Basic surgical principles, as well as insights into many of the surgical specialties, can be learned on this service. Preoperative diagnostic principles and postoperative management are emphasized. The most attractive feature of the rotation is the great diversity of surgical problems encountered. One or two courses. *Staff*

**SUR 151. Surgical Outpatient/ER.** During this four-week rotation, students become familiar with the evaluation and management of surgical problems of the ambulatory patient. In the emergency room, students gain experience in the initial evaluation of potential surgical conditions, particularly abdominal pain. Students learn to perform problem specific examinations and have an opportunity to evaluate patients on return visits. One course. *Staff*

**SUR 152. Intensive Care.** During this experience the student learns to: recognize patients requiring intensive medical care; operate and maintain life-monitoring equipment; understand and evaluate fluid electrolyte replacement and acid-base balance; and administer cardiopulmonary resuscitation and ventilatory assistance. This experience may be gained on the respiratory care unit, medical care unit, intensive care nursery, surgical acute care unit, and in pulmonary function-inhalation therapy. One or two courses.

**SUR 153. Cardiothoracic Surgery.** During this rotation, the student learns to perform a detailed history and physical examination with special emphasis on the cardiothoracic system. With special help from the resident and senior staff and through reading, the student should be able to appreciate special diagnostic procedures such as angiograms, pulmonary function studies, etc. In the operating room, the student will assist and follow the conduct of various open-heart and other major thoracic procedures. The resident, senior staff, and student will participate in the management of complex problems such as various arrhythmias, shock, fluid and electrolyte imbalance. One or two courses. *Cardiothoracic surgery staff*

**SUR 155. Surgical Acute Care Unit.** During this rotation the student is acquainted with the postoperative care of patients who have undergone surgical procedures or suffered massive and severe trauma involving multiple organ systems. Special emphasis is centered on ventilatory assistance problems, open-heart cases, neurosurgical problems, and massive trauma cases. The variety of the patients and the diversity of the problems that exist on the unit give the student a broad insight into surgical postoperative management. The student should strive for an understanding of the pathophysiology and physiology. One or two courses. *Cardiothoracic division staff*

**SUR 156. Otolaryngology.** During this rotation students will learn to evaluate problems related to the ear, nose, and throat. Experience will include both ambulatory and hospitalized patients. Students will gain familiarity with various diagnostic and therapeutic procedures and will have an opportunity to follow patients over a period of time. One or two courses. *Division of Otolaryngology and staff*

**SUR 157. Plastic Surgery.** During this course students gain familiarity with patients requiring plastic repair including burn patients, and patients with facial anomalies and maxillofacial neoplasms. The course objectives include an understanding of preoperative and postoperative care, recording the initial history and physical examination, and ordering indicated laboratory tests and studies. It is hoped that the student will learn to respond sensitively to the emotional needs of this group of patients. One or two courses. *Division of Plastic Surgery and staff*

**SUR 160. Urology.** During this rotation, students learn about urologic disease. Students participate in the care of clinic and hospitalized patients with common urologic problems and take part in initial evaluations, diagnostic procedures, surgery, and acute and long-term follow-up care. One or two courses. *Division of Urology*

**SUR 161. Neurosurgery.** During this eight-week rotation the student is provided with a working understanding of the problems unique in the diagnosis, treatment, and management of the neurosurgical patient. The student may gain experience in the operating room by assisting with the patient, with instrumentation, and with the operative procedures. A working knowledge is gained of diagnostic techniques such as carotid arteriograms, electroencephalograms, ventriculograms, spinal taps, etc. Experience and knowledge in emergency room techniques and management of acute neurosurgical injuries (GSW, blunt head trauma, acute quadriplegia, hemiplegia, etc.) is included. One or two courses. *Division of Neurosurgery*

**SUR 162. Orthopaedic Surgery.** Students gain familiarity with the evaluation and management of common orthopaedic problems at the primary care level, including soft

tissue injuries, fractures, arthritis, and low back pain. Students will learn the mechanism for applying different types of traction, how to apply splints and casts, and how to provide emergency care for acute trauma. One or two courses. *Orthopaedic Division*

**SUR 191. Independent Study.** This rotation allows students with a particular interest in an area of surgery to construct their own need-specific learning experience. SUR 191 is arranged with the program staff and appropriate clinical faculty. One or two courses. *Surgical staff*

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*Graduate Degree Programs*



## The Master of Health Sciences in Biometry Program

Duke University School of Medicine awards a Master of Health Sciences in Biometry degree to students who complete the Biometry Training Program. This new training program meets an existing need at Duke University Medical Center for formalized academic training in the quantitative and methodological principles of clinical investigation. Designed primarily for Duke clinical fellows who are training for academic careers, the program offers formal courses in biostatistics, epidemiology and the use of computers for processing and analyzing medical data. The program is designed to provide maximum flexibility for part-time study, thereby allowing the fellow-student to integrate the program's academic training with his or her clinical training.

The degree requires 24 units of graded course work and a research and thesis project for which six units of credit is given. The formal course work consists of a core curriculum of five courses (15 units) required of all degree candidates and three elective courses (9 units). The student's clinical research activities provide the setting and the data for the project; the thesis serves to demonstrate the student's competence in the use of quantitative methods in medical research.

The Biometry Training Program is offered by the faculty of the Division of Biometry and Medical Informatics in the Department of Community and Family Medicine with the participation of other members of the Medical Center faculty having expertise in relevant areas.

The core curriculum consists of the following courses:

**BMI-211(B). Probability and Statistical Inference.** Laws of probability, probability distributions, descriptive statistics, graphical displays of relationships, philosophy of statistical tests, tests for differences in central tendency, paired comparisons and correlation. Type I and Type II errors and problems of multiple comparisons. Weight: 3. Dawson

**BMI-212(B). Design of Etiological, Clinical and Experimental Studies.** General principles of study design. Observational studies, including case-control and cohort designs, their relative advantages and statistical methods used in their analysis. Experimental studies, including randomized controlled clinical trials, their principal features, ethics and alternative sequential design strategies. Design of data collection instruments and studies to assess observer variability and to evaluate diagnostic tests. Prerequisite: BMI 211 (may be taken concurrently). Weight: 3. Smith

**BMI-213(B). Research Data Management and Statistical Computing.** Database management considerations and file structures for collecting and organizing research data. Uses IBM-PCs, DataEase, and SAS for examples. Prerequisite: Experience with PC-DOS (e.g., continuing education short course) or permission of instructor. Weight: 3. *Muhlbaier and Harrell*

**BMI-216. Survival and Risk Analysis.** General aspects of survival analysis, including failure-time distributions, hazard functions and Kaplan-Meier estimation of survival functions. Theory and practical analytic strategies for logistic and Cox regression models of survival and risk data. Laboratory exercises involving analysis of matched case-control data. Laboratory exercises involving analysis of clinical and epidemiologic follow-up data. Prerequisite: BMI-215. Weight 3.

**BMI-217(B). Clinical Decision Analysis.** Using formal methods for analyzing complex patient management problems. Structuring problems as trees. Applying data from the literature to estimate the likelihood of outcomes. Quantitating the value of health outcomes. Calculating the strength of preference for one strategy over others. Decision analysis as a guide to clinical research and as a policy tool. Weight: 3. *Matchar*

**BMI-218. Clinical Trials.** An introduction to fundamental concepts in the design and analysis of clinical trials. Topics include protocol development, randomization procedures, sample size and study duration, control of bias, stratification and regression techniques, sequential methods, control groups (historical and concurrent), compliance, follow-up studies, data management and data quality control, study monitoring, and quality of life. Prerequisite: BMI-212. Weight: 3.

**BMI-219. Categorical Data Analysis.** Methods for analyzing nominal and ordinal response variables, including chi-square tests of independence and homogeneity, Mantel-Haenszel tests, logistic regression models, and weighted least squares fitting of linear models. Measures of association such as Kendall's tau, Spearman's rho, the relative risk, and the odds ratio. Prerequisite: BMI-215. Weight 3.

**BMI-233(B). Biomedical Uses of Computers.** An indepth study of the use of computers in biomedical applications. Important concepts related to hardware, software, and applications development will be studied through analysis of state-of-the-art systems involving clinical decision support, computer-based interviewing, computer-based medical records, departmental/ancillary systems, instructional information systems, management systems, national data bases, physiological monitoring, and research systems. C-L: Biomedical Engineering 243. Weight: 3. *Hammond*

**BMI-234(B). Artificial Intelligence in Medicine.** An introduction to basic concepts of artificial intelligence (AI) and an indepth examination of medical applications of AI. The course includes heuristic programming and a brief examination of the classic AI programming languages (LISP and PROLOG) and a study of rule-based systems and cognitive models. Specific applications examined in detail include MYCIN, ONCOCIN, PIP, CASNET, and INTERNIST and selected EXPERT systems. C-L: Biomedical Engineering 265. Weight: 3. *Hammond*

**BMI-235(B). Microprocessors and Digital Instruments.** Design of microcomputer-based devices including both hardware and software considerations of system design. Primary emphasis on hardware aspects, including a progression through initial design, prototype construction in the laboratory, testing of prototypes to locate and correct faults, and final design evaluation. Evaluation includes examination of complexity, reliability, and cost. Design and construction oriented toward biomedical devices or instruments that include dedicated microcomputers, usually operating in real time. C-L: Biomedical Engineering 205. Weight: 3. *Hammond*

Other electives may include courses already available in other University programs, such as the Departments of Computer Science and Biomedical Engineering, the Institute of Statistics and Decision Sciences and the Center for Health Policy Research and Education.

Clinical fellows entering training programs in July may apply for fall admission to the Biometry Training Program after arriving at Duke.

For additional information contact William E. Wilkinson, Ph.D., Chief, Division of Biometry and Medical Informatics, Box 2914, Duke University Medical Center, Durham, North Carolina 27710, (919) 286-9243.

The Graduate School of Duke University awards a Master of Health Administration degree to students who complete the program in health administration and a Master of Science degree to students who complete the program in physical therapy. Both health administration and physical therapy are departments in the Graduate School and additional information, including courses of instruction, may be found in the Graduate School bulletin which is available through the Office of Admissions, Graduate School, Duke University, Durham, North Carolina 27706. Graduate programs are also integral parts of Duke University Medical Center.

## Health Administration

Professors: J. Alexander McMahon, J.D. *Chairman*; B. Jon Jaeger, Ph.D.; David G. Warren, J.D.

Associate Professors: David J. Falcone, Ph.D.; Robert E. Taylor, Ph.D.

Assistant Professor: Donald S. Smith, M.H.A.

Adjunct Associate Professors: William J. Donelan, M.B.A.; Robert G. Winfree, M.A.; Duncan Yaggy, Ph.D.

Adjunct Assistant Professors: Nancy E. Cahill, J.D.; Kathryn Magruder-Habib, Ph.D.; J. Kevin Moore, J.D.

Visiting Professor: David M. Kinzer, A.B.

Consultant: Robert E. Toomey, LL.D.

The Graduate School of Duke University awards a Master of Health Administration degree to students who complete a four-semester, two-year graduate program in the Department of Health Administration.

The M.H.A. program prepares carefully selected students for careers in hospitals and other health care organizations. Educational emphasis is placed on business and management theory and skills, practical exposure to the health services environment, and an appreciation of the health care ethic. Students graduating from the program will have a strong quantitative and qualitative foundation for analysis and decision making.

**Program of Study.** To provide a broad management base, a cooperative curriculum has been established between the Department of Health Administration and the Fuqua School of Business. Students spend the majority of their first year in core management courses at Fuqua. In addition, students take one course each semester in the Department of Health Administration, plus a laboratory course in which they are introduced to the Duke University Medical Center and other parts of the health system.

During the summer following the first year, students are required to participate in a practicum of at least ten weeks duration. Under a preceptor's guidance in a hospital or other health system organization, each student observes health organization management and develops a project for the organization. The department assists with placement, balancing students' wishes with preceptors' needs. In the second year of the program, students concentrate on specialized courses in health administration. There are a number of required courses that enhance the students' perception of management and finance in the health system. Elective courses are offered to enable students to obtain more specialized knowledge in such areas as marketing and cost-benefit analysis. Electives are available within the department, at Fuqua, and in other graduate programs at Duke University.

**Admission.** Admission is highly competitive; one class of approximately thirty students is admitted each year, to start in late August. Selection is based on previous academic and professional work, Graduate Management Admission Test scores, letters of

recommendation, and personal interviews conducted on campus. Competency in calculus is a prerequisite for admission. For further information write to the Admissions Coordinator, Department of Health Administration, Box 3018, Duke University Medical Center, Durham, North Carolina 27710.

**Tuition and Expenses.** Tuition for the 1989-90 academic year is \$14,900. Estimated costs for the first year are approximately \$22,000, including tuition and living expenses.

**Financial Aid.** A limited amount of scholarship aid is available based on need, as well as a limited amount of aid based on merit. The Medical Center Office of Financial Aid also offers financial assistance in the form of loans which are awarded based on need. Financial aid based on need will be determined by using the criteria as stated in the section on student aid in the chapter "The Allied Health Programs". Health administration students are not eligible for fellowships, assistantships and traineeships offered by the Graduate School.

## Physical Therapy

Professor: Robert C. Bartlett, M.A., *Chairman*  
Associate Professors: Eleanor F. Branch, Ph.D., *Director of Graduate Studies*; Elia E. Villanueva, M.A.; Terry Malone, Ed.D.  
Assistant Professors: Grace C. Horton, B.S.; Pamela W. Duncan, M.A.C.T.; Jan Gwyer, Ph.D.  
Assistant Clinical Professor: Mary Ellen Riordan, M.S.  
Clinical Associates: Linda M. Lawrence, B.S.; Daniel Dore, M.P.A.; Julie M. Chandler, M.S.  
Adjunct Assistant Professor: Marcia Roses, M.A.  
Adjunct Associates: Nicholas Caras, Ed.D.; Susan E. Harryman, M.S.; Charlene Nelson, M.A.; Martha Propst, M.A.; Wadsworth D. Roy III, B.S.; Elizabeth T. Warren, B.S.

The Duke University Graduate Program in Physical Therapy, leading to the Master of Science degree, is a program for entry into the profession of physical therapy. The program is designed to provide a comprehensive foundation in the art and science of physical therapy, preparing individuals for clinical practice. Experiences in the areas of administration and research are also provided. Students may arrange their curricula to allow for the development of teaching skills.

**Program of Study.** The fully accredited program of study requires fifty-two credit units of graduate course work, research, clinical affiliation, or other equivalent academic experience, and is twenty-two consecutive months in length. Forty to forty-two units of work must be in physical therapy, seven units in designated courses in anatomy, and the remaining three to five units in electives in related fields. A research project is required which provides the opportunity to pursue a particular aspect of physical therapy in depth.

**Prerequisites for Admission.** Requirements for admission to the physical therapy program include a baccalaureate degree, completion of prerequisite courses, Graduate Record Examination (GRE) Aptitude Test scores, the filing of an application, and, upon invitation, a personal interview. In order to meet the closing date of 13 January, it is strongly recommended that the GRE be taken no later than the October test date. The application and all supportive documents must be received by the Graduate School Office of Admissions by 13 January and only completed applications are forwarded to the Graduate Program in Physical Therapy. No application forms are mailed after 15 December. Only students for full-time study are accepted. State of residency does not influence admission policies or tuition costs. Requests for applications and further information should be directed to the Director of Graduate Studies, Department of Physical Therapy, Box 3965, Duke University Medical Center, Durham, North Carolina 27710.

**Tuition and Expenses.** The 1989-90 academic year tuition for students enrolled in the Graduate Program in Physical Therapy is \$330 per credit unit. Estimated cost for the two-year program is approximately \$35,000, including tuition and living expenses.



**Financial Aid.** All students are encouraged individually to seek sources of financial assistance. Loan money may be available through the Duke University Medical Center. Financial aid applications are mailed to students after acceptance into the program. Please refer to the section on student aid in the chapter, "The Allied Health Programs." Physical therapy students are not eligible for fellowships, assistantships and traineeships offered by the Graduate School.

*Certificate Programs*



Duke University Medical Center has responded to the increased need for qualified individuals at all levels in the health care system by developing educational programs designed to equip people for a variety of positions. These programs, which vary in admission requirements and length of training, offer students both clinical and didactic experience. Graduates of these programs are awarded certificates.

## **Clinical Psychology Internship**

The Division of Medical Psychology, Department of Psychiatry, Duke University Medical Center, offers internship training in clinical psychology to students who are currently enrolled in APA-approved Ph.D. programs in clinical psychology and who have already completed three years of graduate study. The program, approved by the American Psychological Association, provides experience in many contexts with a wide diversity of patients. Internship training provides experience in the traditional activities of clinical psychologists: assessment, consultation, treatment, and research. Those successfully completing the requirements for internship will be awarded a Duke University Medical Center certificate. Requests for additional information and correspondence concerning admission to the program should be directed to the Director, Clinical Psychology Internship Program, Box 3362, Duke University Medical Center, Durham, North Carolina 27710.

## **Electrophysiology Technology**

Medical Director: Darrell V. Lewis, M.D.

Program Director: Linda Ollis, B.S., R.EEG T.

Clinical Coordinator: Josie Brame, R.EEG T.

Professor: C. W. Erwin, M.D.

Associate Professor: Michael R. Volow, M.D.

Assistant Professors: Mark Alberts, M.D.; Rodney A. Radtke, M.D.

Evoked Potential Instructor: Andrea Erwin, B.A.

Instructional Staff: Neurology residents and laboratory staffs at Duke and the Durham VA Medical Centers and Epilepsy Centers

The Electrophysiology Technology Program is sponsored by the Division of Neurology, Department of Medicine, Duke University Medical Center. A major part of the course involves training in EEG (electroencephalography) and EP (evoked potential) technology. Other areas to which the student is exposed include electrocardiography, electromyography, and EEG research. Five to eight students are accepted into the program each session. A class will begin in September 1989 and finish in late November 1990. The current class began in March 1988 and will finish in late May 1989. Upon successful completion of the fifteen-month program, graduates are awarded a certificate and are eligible to take the certifying examination given by the American Board of Registration of Electroencephalographic Technologists.

**Program of Study.** The program consists of fifteen months of classroom instruction and clinical training. Approximately two hours per day are spent in the classroom. The remainder of each day is spent in clinical sites at Duke University, Durham VA Medical Center, or Durham County General Hospital.

**Prerequisites for Admission.** Applicants must have a high school diploma. Applicants who had a science-oriented high school curriculum and/or some college experience will receive priority.

**Application Procedures.** Applications must be received by 1 June of the years for which classes begin in September and by 1 December of the years in which classes begin in March. Applications must contain the following:

1. a completed application form;
2. results of the Scholastic Aptitude Test from the College Entrance Examination Board (CEEB);
3. official high school and/or college transcripts;
4. at least three letters of recommendation from individuals not related to the applicant—one from an individual acquainted with the applicant's character and the others from those acquainted with the applicant's educational or professional experience.

All applicants are notified by 15 July (or 15 January of alternate years) regarding admission to the program. Requests for further information and application forms should be directed to the Program Director, EEG Laboratory, P.O. Box 3948, Duke University Medical Center, Durham, NC 27710.

**Fees and Expenses.** A fee of \$1,600 is required of all students enrolled in the program. An additional nonrefundable fee of \$30 for processing the application, payable to Duke University Medical Center, must accompany the application. Students do not pay full Duke tuition. Students must furnish their own uniforms. In addition, books cost approximately \$275. The Student Health fee is \$476 per year.

**Financial Aid.** Please refer to the section on student aid in the chapter, "The Allied Health Programs."

## Hospital and Clinical Pharmacy Residency

Director of Pharmacy Services: James C. McAllister, M.S.

Associate Director of Pharmacy Services: Stephen C. Dedrick, B.S.

Assistant Director for Clinical Services: Christine Rudd, Pharm.D.

Coordinator for Residency Training: Austin Lee, Pharm.D. Residency Program.

The Hospital and Clinical Pharmacy Residency is a twelve-month postbaccalaureate program conducted by the Department of Pharmacy at the Duke University Medical Center. The residency is designed to give the graduate pharmacist extensive training in clinical pharmacy practice and basic hospital pharmacy services including unit-dose drug

distribution, large and small parenteral admixture service, total parenteral nutrition program, controlled drug systems, and hospital pharmacy administration.

**Admission Standards.** Applicants must be graduates of accredited schools of pharmacy and must have a B.S., M.S., or Pharm.D. degree. Resident candidates must have demonstrated good academic and leadership capabilities and be eligible for licensure in North Carolina. It is preferable that the applicant have previous hospital pharmacy experience.

**Application Procedures.** Applications must be submitted by 30 January of the year for which admission is requested and include the following:

1. ASHP resident matching program registration by the preceding 15 December;
2. personal interview, to be arranged by appointment;
3. official transcript from pharmacy school and other professional programs attended;
4. completed Allied Health Division application forms; and
5. letters of recommendation from at least three persons who have known the applicant professionally (i.e., pharmacy school professor, hospital pharmacist, clinical pharmacist).

Applicants will be notified by 30 March regarding admission to the program. Requests for further information and application forms should be directed to the Coordinator for Residency Training, Box 3089, Duke University Medical Center, Durham, North Carolina 27710.

**Stipend.** A stipend of \$22,500 is granted for the twelve-month residency.

**Travel Allowance.** A travel allowance of \$350 is granted for the twelve-month residency.

## Medical Technology

Chairman, Department of Pathology: Robert B. Jennings, M.D., *James B. Duke Professor of Pathology*

Director of Hospital Laboratories: Kenneth A. Schneider, M.D., *Professor of Pathology*

Medical Director, Medical Technology Program: Frances K. Widmann, M.D., *Associate Professor of Pathology*

Program Director, Medical Technology Program: Margaret C. Schmidt, Ed.D., MT(ASCP)SH, CLS(NCA), CLSpH(NCA), *Associate in Pathology*

Assistant Program Director, Medical Technology Program: Cynthia L. Wells, Ed.D., MT(ASCP), CLS(NCA)

Education Coordinators, Medical Technology Program: Kenni B. Beam, M.S., MT(ASCP)SM, CLSpM(NCA);

Barbara L. Benton, B.S., CLS/C(NCA), C(ASCP); Iris W. Long, M.B.A., MT(ASCP)SH, CLSpH(NCA);

Denise Y. Rodio, B.S., MT(ASCP)SBB

Professors: John A. Koepke, M.D.; Lyman Barth Reller, M.D.

Associate Professors: Dolph Klein, Ph.D.; Thomas G. Mitchell, Ph.D.; Emily Reisner, Ph.D.; Peter Zwadyk, Ph.D.

Assistant Professors: William H. Briner, B.S.; Robert H. Christenson, Ph.D.; Jane T. Gaede, M.D.; Frank Sedor, Ph.D.; John Toffaletti, Ph.D.

Associate: John A. Bittikofer, Ph.D.

Medical Research Associates: Enrique Estevez, Ph.D.; Lizzie Harrell, Ph.D.

Instructors: Lee A. Barbieri, B.S., MT(ASCP); Donald Royster, CLPIb(NCA); Robert F. Wildermann, M.S., C(ASCP).

Clinical Teaching Staff: Billy H. Abrams, B.A., MT(ASCP); Judith P. Adams, B.S.; Marilyn Alexieff, B.A.,

MT(ASCP); Yolanda Bell, B.S., MT(ASCP); Donald Bennett, B.S., MT(ASCP); Barbara Benton, B.S.;

Theresa Bolk, M.B.A., MT(ASCP)SBB; Janet Celko, B.S., MT(ASCP); Adella Clark, B.S., MT(ASCP);

Martha Rae Combs, B.S., MT(ASCP)SBB; Betty R. Crews, B.S., MT(ASCP); Jean T. Crute, B.S.,

MT(ASCP); Mary Ann Dotson, B.S., MT(ASCP); Debbie Eveland, B.S., SBB(ASCP); Priscilla L. Farmer,

B.S., MT(ASCP); June Gregonis, B.S., MT(ASCP); Kay Harris, Cathy Holleman, M.S., MT(ASCP)SC;

Mary S. Jones, MT(HEW); Kathryn Kirvan, B.S., MT(ASCP)SC; Freda Kohan, B.S., MT(ASCP)SM;

Ellen Lundberg, B.S., MT(ASCP); Janet Mueller, B.S., MT(ASCP); Beverly S. Oxford, B.S.,

MT(ASCP)SC; Ann Padgett, B.H.S., MT(ASCP)SM; Ruth Parrish; Linda Ryan, B.S., MT(ASCP); Nor-

ma Sabiston, B.S., MT(ASCP); Wiley Schell, M.S.; Irene A. Wyatt, B.S., MT(ASCP)

Affiliate Institution Advisers: Robert K. Reid, Ph.D., *Meredith College*; Marsha E. Fanning, Ph.D., *Lenoir-Rhyne College*; Stephen R. Nohlgren, Ph.D., *Salem College*; Francis M. Knapp, Ph.D., *Stetson University*; Grover C. Miller, Ph.D., *North Carolina State University*; Steven Chalgren, Ph.D., *Radford University*; Larry Martin, Ph.D., *University of Tampa*; Richard Sudds, Ph.D., *State University of New York at Plattsburgh*; Neal Summerlin, Ph.D., *Lynchburg College*; Wilbur C. Jones, Ph.D., *Concord College*; James Small, Ph.D., *Rollins College*; Edwin L. Bell, Ph.D., *Albright College*.

**Program of Study.** The educational program begins 1 June and consists of fifty-four instructional weeks which includes three weeks of vacation. The first four weeks consist of a core curriculum of courses offered to all students at the same time. After successful completion of the core curriculum, the student is eligible to begin forty weeks of coordinated coursework and clinical rotations in blocks of ten weeks each. After completion of the four major course and rotation blocks, a six-week term is devoted to a course of study in educational techniques, management and supervision, and quality assurance in health care. Lectures, student laboratory experience, and clinical laboratory instruction are presented by a faculty and staff of medical technologists, physicians, chemists, and microbiologists.

Graduates of this CAHEA-accredited program are eligible for national certification as a medical technologist. Career opportunities in hospital laboratories, research, public health facilities, and educational institutions are available. This program is formally affiliated with Meredith College, Raleigh, North Carolina; Lenoir-Rhyne College, Hickory, North Carolina; the University of Tampa, Tampa, Florida; Salem College, Winston-Salem, North Carolina; Stetson University, Deland, Florida; North Carolina State University, Raleigh, North Carolina; and Radford University, Radford, Virginia; State University of New York at Plattsburgh, Plattsburgh, New York; Lynchburg College, Lynchburg, Virginia; and Concord College, Athens, West Virginia to provide the 3 + 1 study format toward a degree from these institutions. A cooperative agreement exists with Rollins College, Winter Park, Florida, and Albright College, Reading, Pennsylvania to channel 4 + 1 students to this program.

**Prerequisites for Admission.** Applicants to the program must possess the following academic prerequisites:

1. Possession of a baccalaureate degree, OR the completion of at least three years of study in an accredited college or university which totals ninety semester hours (120 quarter hours) with grades of C or better, and the written guarantee that a baccalaureate degree will be conferred by a university after successful completion of this program.
2. Four courses in major-track chemistry (including at least one course in organic chemistry).
3. Four courses in major-track biology (including one course in microbiology).
4. One course of college level mathematics.

**Application Procedures.** A completed application file contains the following:

1. The completed Duke University Medical Center Allied Health application form, including a nonrefundable processing fee;
2. Official transcript(s) from all colleges and universities attended;
3. Three letters of recommendation, one from a professor of biological sciences, one from a professor of chemistry, and one from a college advisor;
4. A personal interview with members of the Admissions Committee, if requested, following the receipt of the application and other information;
5. A written statement of interest in medical technology;
6. A NAACLS transcript evaluation, if requested.

The deadline for applications is 1 April of the year for which admission is requested. It is strongly recommended that applications be submitted by 15 February to receive timely consideration. Applications received after 15 February will be considered on a space-available basis. Applicants will be notified no later than 1 May regarding admission to

the program. Requests for further information and application forms should be directed to the Medical Technology Program Admissions, Box 2929, Department of Hospital Laboratories, Duke University Medical Center, Durham, North Carolina 27710.

**Fees and Expenses.** Tuition for the program is \$2,325.\* A minimal lab fee is charged for students labs. The student is responsible for housing, board, uniforms, books, and student health fee and medical insurance.

A nonrefundable deposit of \$175 is required of all accepted candidates to hold their place in the class. This deposit applies toward the tuition fee. The remaining tuition and fee balance is billed in two increments; at matriculation and in January (mid-year).

**Transportation Required.** The use of facilities other than Duke and Durham Veterans Administration Medical Centers requires transportation. It is the responsibility of each medical technology student to provide a means of transportation to and from the facilities selected for learning experiences. Although a few sites may be within bicycling distance, most are not.

**Financial Aid.** Please refer to the section on student aid in the chapter, "The Allied Health Programs." The program will provide information on the department of Hospital Laboratories' Tuition Loan Program.

**Part-time Employment.** Students who wish to work are eligible to compete for available part-time paid positions within Hospital Laboratories AFTER successful completion of the core curriculum and one major course and rotation block. Such positions are not to exceed a maximum of 19.9 hours per week.

**Courses of Instruction.** Students must complete the following courses:

#### Core Curriculum

	<i>Course Title</i>	<i>Clock Hours</i> <i>Lect/Lab/Rotation</i>
	ORIENTATION ACTIVITIES	35/10/00
MT 103	Phlebotomy Principles and Procedures	08/00/40
MT 107	Basic Principles of Immunology	35/00/00
MT 110	Medical Application of Computers	15/15/00

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Course work in the core curriculum must be successfully completed to gain access to the courses which follow.

#### Course and Rotations Blocks

	<i>Course Title</i>	<i>Clock Hours</i> <i>Lect/Lab/Rotation</i>
MT 112	Biochemical Measurements and Disorders	73/32/295
MT 120	Immunohematology	41/57/240
MT 121	Blood and Body Fluids	80/70/160
MT 132	Medical Microbiology/Serology	34/26/280

#### Program Final Term

	<i>Course Title</i>	<i>Clock Hours</i> <i>Lect/Lab/Rotation</i>
MT 113	Quality Assurance in Health Care	25/00/00
MT 114	Elective/Alternate Site Rotation	00/00/40
MT 124	Educational Techniques for the Health Professional	16/00/00
MT 126	Laboratory Supervision and Management	26/00/40

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\*Subject to change without prior notice.

# Ophthalmic Medical Technician

Professor: W. Banks Anderson, M.D., *Medical Director*

Associate Professor: Judy H. Seaber, Ph.D., *Program Director*

Teaching Staff: Linda Griffin, CO; Barbara Suitt, R.N., COT, *Clinical Coordinator*

The ophthalmic medical technician program is sponsored by the Department of Ophthalmology, Duke University Medical Center. This is a one-year certificate course designed to prepare the student to perform adequately as an ophthalmic medical technician. The program consists of didactic lectures designed to provide the basic clinical background necessary for the student to understand and perform the technical tasks designated to them by an ophthalmologist. The educational program begins 1 July, and consists of forty-nine weeks of instruction with three weeks of vacation. The core curriculum will be covered within the first six months supplemented by clinical experience under close supervision of clinical support staff and faculty. The second half of the program will consist of clinical rotations with the student working under the close supervision of qualified clinical support staff and faculty and evaluated on a routine basis as their skills develop.

Upon satisfactory completion of the course, students will receive certification from Duke University Medical Center. Following one year of work experience graduates are eligible to sit for national certification examination by the Joint Commission of Allied Health Personnel in Ophthalmology at the level of an ophthalmic medical technician.

**Prerequisites for Admission.** Applicants to the program must have two years of college or the equivalent.\* Priority will be given to students with a college degree or extensive work experience in some field of ophthalmology.

**Application Procedures.** Applications must be received by 1 May of the year for which admission is requested and must contain the following:

1. the completed Duke University Medical Center Allied Health application form, including a nonrefundable processing fee;
2. official transcript(s) from all colleges and universities attended;
3. three letters of recommendation;
4. a personal interview with members of the admissions committee may be requested following receipt of the application and other information.

The deadline for applications is 1 May of the year for which admission is requested. It is strongly recommended that application be submitted as early as possible. Applicants will be notified no later than 1 June regarding admission to the program. Requests for further information and application forms should be directed to the Program Director, Judy H. Seaber, Ph.D., Box 3802, Duke University Eye Center, Durham, North Carolina 27710.

**Fees and Expenses.** Tuition for the program is \$2,400. The student is responsible for housing, board, books and student health fee and medical insurance. Fifty percent of the tuition is due at matriculation with the balance being due in January.

**Transportation Required.** It may be necessary for students to rotate at clinical sites other than at Duke University Medical Center and transportation may be necessary. It is the responsibility of the student to provide a means of transportation to and from the facility, selected for learning experiences.

**Financial Aid.** Financial aid through state and federal programs is not available through 1989. All candidates are urged to seek independent sources of financial assistance.

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\*Decided by the admissions committee on an individual basis.



**Courses of Instruction.** Students must satisfactorily complete the following courses. The curriculum will include but will not be limited to the following:

<i>Course Title</i>	<i>Clock Hours</i>
Basic Science Lecture	200
Visual Acuity Assessment	10
Physiology and Anatomy of the Eye	20
Physical History	9
Cardiopulmonary Resuscitation	16
Instrument Maintenance	5
Visual Fields	40
Optics	40
Spectacles	10
Anatomy	10
Glaucoma	16
External Diseases	8
Physiology	12
Contact Lens	14
Ocular Motility	15
Neurology	5
Practicums, Clinical I, II, III, IV, V	TBA
TOTALS	430

## Pastoral Care and Counseling

Associates in Instruction: James L. Travis, B.D.,Th.M.,Ph.D.; Dorothy Dale Owen, M.Div.; James A. Rawlings, Jr., M.Div.

A graduate program in pastoral care and counseling is available to clergy, theological students, members of religious orders and lay persons of all religious faith groups. There are three levels of training and five distinct program structures of Clinical Pastoral Education offered at Duke University Medical Center. All programs are designed to train individuals who desire to specialize in pastoral care, to enhance their skills as parish clergy, or to broaden their understanding of ministry. With the exception of the Parish-Based Extended Basic CPE Program, all who enroll in any of the programs of Clinical Pastoral Education will be required to serve as chaplains in the Medical Center. All programs are accredited by the Association for Clinical Pastoral Education, Inc.

**Programs of Study.** The three training levels of Clinical Pastoral Education are basic, advanced, and supervisory. There are three distinct program structures of basic CPE including the summer fulltime basic CPE program (June-August), the hospital-based extended basic CPE program, and the parish-based extended basic CPE program. Extended basic CPE units are offered concurrently with the fall and spring semesters of Duke Divinity School. The fourth program structure is the year-long residency program, which begins in June and extends through the following May (four consecutive units). In the residency program, one may be at either a basic or advanced level of training. The fifth program structure is the supervisory CPE program for those seeking to be certified as a clinical pastoral education supervisor.

Requests for application and further information about any of the programs should be directed to the Director, Pastoral Services, Box 3112, Duke University Medical Center, Durham, North Carolina 27710. Admission procedures to each program include:

1. Completion and submission of written application materials
2. An admission interview by a qualified interviewer.
3. Acceptance by the Duke University Medical Center CPE Center.

In addition to the above admission procedures, requirements for admission to specific CPE programs include:

1. Graduation from college and seminary-equivalences may be considered; and adequate ministry formation/development and experience in ministry which indicates readiness for this program (Residency CPE Program).
2. Ecclesiastical endorsement; pastoral experience of usually not less than three years; completion of program objectives of basic and advanced CPE; and consultation by the appropriate committee in the region with respect to his/her readiness to pursue supervisory training (Supervisory CPE).
3. Completion of a consultation process between a Duke University Medical Center CPE supervisor and a church board (Parish-Based Extended Basic CPE).
4. A personal interview with Duke University Medical Center faculty (Residency and Supervisory CPE).
5. Submission of previous basic CPE unit(s) final evaluation by student and supervisor(s) (Residency and Supervisory CPE).

**Stipends and Fees.** Stipends are available for students in the residency program and the supervisory CPE program. For 1989-90, the stipend for the residency program is \$13,750, and for the supervisory CPE program the stipend is \$16,000. There are no stipends available for summer fulltime and extended basic CPE units. Stipended students are eligible for the same benefit package as Duke University employees of comparable levels.

Tuition is \$300 per unit when enrolled through Allied Health of Duke University Medical Center, and \$1,300 per unit when enrolled through Duke University Divinity School of academic credit. (A unit of CPE equals two academic courses).

Fees include the following:

1. Application fee of \$30 must accompany an Allied Health form, unless applying with intention of enrolling through Duke University Divinity School.
2. \$45 per unit for Mid-Atlantic Region fee.
3. \$35 for admission interviews when requested.
4. \$100 tuition deposit for those accepted into the year-long residency program.
5. \$50 tuition deposit for students accepted into the summer fulltime and extended basic CPE programs.

## Physician Assistant

A limited number of students who are not eligible for admission to the Bachelor of Health Science degree program, but who possess outstanding credentials in a health care field, are accepted into the certificate program. The two-year program, including tuition, is the same as that described previously. Students are issued a Duke University undergraduate identification card and are granted the same privileges as the physician assistant students in the Bachelor of Health Science degree program. Prerequisites for admission differ in that applicants not planning to receive the degree need not complete sixty semester hours of college level courses. Also, these applicants must submit their high school transcript(s); transcripts from diploma nursing or other health professional schools and military training programs; must complete by 15 January a college level course in both general chemistry and general biology; and must complete, also by 15 January, two years of health care experience.

## Specialist in Blood Bank Technology

Chairman, Department of Pathology: Robert B. Jennings, M.D., *James B. Duke Professor of Pathology*  
 Director of Hospital Laboratories: Kenneth A. Schneider, M.D., *Professor of Pathology*  
 Medical Director, Specialist in Blood Bank Technology Program: Steven J. Bredehoeft, M.D., *Assistant Professor of Pathology, Assistant Professor of Surgery*  
 Program Director, Specialist in Blood Bank Technology Program: Denise Y. Rodio, B.S. MT(ASCP) SBB

Program Instructors: Tabbie Bolk, M.B.A., MT(ASCP) SBB; Gail Vesilind, MT(ASCP) SBB; Mary Lee Campbell, MT(ASCP) SBB; Martha Rae Combs, MT(ASCP) SBB  
Professors: Wendell K. Rosse, M.D.  
Associate Professors: Frances K. Widmann, M.D.; Emily G. Reisner, Ph.D.  
Associate: Margaret C. Schmidt, Ed.D., MT(ASCP)SH, CLS(NCA), CLSpH(NCA)  
Instructors: Cynthia L. Wells, Ed.D., MT(ASCP), CLS(NCA); Robert F. Wildermann, M.S. C(ASCP)  
American Red Cross, Triangle Center Instructors: Ann Califf, MT(ASCP) SBB; Janet Celko, MT(ASCP).  
American Red Cross, Piedmont Center Instructor: Elizabeth Moore, MT(ASCP) SBB

The Transfusion Service in the Department of Hospital Laboratories of the Duke University Medical Center offers a twelve-month program in advanced blood bank technology. This program is accredited by the American Association for Blood Banks and the American Medical Association's Committee on Allied Health Education and Accreditation (CAHEA). It is designed to give experience in administration, supervision, teaching, technical consultation, and research. Upon satisfactory completion of the course work, the student is awarded a certificate and is eligible for national certification as a Specialist in Blood Bank Technology. Career opportunities in hospital blood banks and transfusion services, independent blood centers, research and development laboratories, sales and marketing positions, and educational institutions are widely available.

**Program of Study.** This educational program begins the first Monday of January and consists of fifty-two educational weeks. The months of January, February, and June are devoted solely to didactic work with instruction being provided by the faculty and staff of the Medical Center and Triangle Center of the American Red Cross. Rotations will begin in March and continue through December.

**Prerequisites for Admission.** Applicants to this program shall possess a baccalaureate degree which includes sixteen (16) semester hours (twenty-four quarter hours) of biological science (with one semester in microbiology); sixteen (16) semester hours (twenty-four quarter hours) of chemistry (with one semester in organic or biochemistry); and one semester (one quarter hour) of mathematics. Prior experience in hospital blood banking is desirable. The directors of the program will rule on the acceptability of the work experience.

**Application Procedures.** Applications should be submitted by 1 October, and must contain the following:

1. A completed Duke University Medical Center Allied Health application form, including a nonrefundable processing fee;
2. Two copies of the American Association of Blood Banks Educational Program for Specialist in Blood Bank Technology application form;
3. If certified, a notarized copy of the certificate from the certifying agency;
4. Official transcripts from all colleges and universities attended;
5. Three letters of recommendation are required. Two professional references, at least one of which must be provided by a present employer and one character reference from a source of your choice should be submitted to the Education Coordinator.
6. A written statement of interest in further education in blood banking and this program;
7. A personal interview with members of the Admissions Committee, if requested, following the receipt of the application forms and other requested information.

Requests for information and application forms should be directed to the Program Director, Specialist in Blood Bank Program, Box 2929, Duke University Medical Center, Durham, North Carolina 27710.

**Fees and Expenses.** Tuition for the program is \$2,000,\* payable in two installments, at matriculation and in September. The student is responsible for housing, board, books, student health fee, and insurance.

**Financial Aid.** Each student accepted into the SBB program is eligible to receive funding from the department. The amount of funding will be determined on a yearly basis. Specialist in blood bank technology students are eligible for a full tuition loan which will be entirely forgiven by Duke University Hospitals if all conditions are met. One year (twelve consecutive months) of full-time employment in the Duke University Medical Center Department of Hospital Laboratories, or in another approved North Carolina institution if no position is available at Duke University Medical Center, is required immediately following graduation to meet forgiveness conditions. Loan monies are limited to the amount of tuition exclusive of fees, and are subject to federal, state, and social security taxes once employment begins. Please also refer to the section on student aid in the "The Allied Health Programs" chapter.

**Courses of Instruction.** Students must complete the following courses and clinical rotations:

<i>Course Title</i>		<i>Contact Hours</i>
SBB 101A	Immunology	20
SBB 101B	Genetics	18
SBB 102A	Coagulation, Component Therapy	23
SBB 102B	Hematology	11
SBB 103	Human Blood Groups	39
SBB 104	Special Topics in Blood Banking, Quality Assurance	18
SBB 106	Educational Techniques	18
SBB 107	Management/Supervision	18
SBB 108	Seminars in Transfusion Medicine	50
SBB 109	Clinical Laboratory Rounds	150
<i>Clinical Rotations</i>		<i>Weeks</i>
SBB 110	Transfusion Service/Compatibility Laboratory	12
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\*Subject to change without prior notice.



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*Information and Regulations*

**Trinity College of Arts and Sciences**  
**The School of Engineering**



## THE DUKE STUDENT HONOR COMMITMENT

A unique aspect of a liberal education is its attempt to instill in the student a sense of honor and high principles that extends beyond academics. An essential feature of Duke University is its commitment to an atmosphere of integrity and ethical conduct. As a student of Duke University I accept as my personal responsibility the vigorous maintenance of high standards of honesty, truth, fairness, civility, and concern for others.

My devotion to integrity establishes that I will not cheat in academic work, and that I will adhere to the established and required community code of conduct. According to the dictates of my own conscience, I will report behavior in violation of such established standards. In addition, and beyond the requirements of any code or law, I confirm my own commitment to personal honor and integrity in all matters large and small. Even though the ideal of honor is an abstract one, by implementing this ideal, I join the men and women of Duke University in making the concept of honor a reality.

The Duke Student Honor Commitment was developed by students of the Class of 1982, approved through a student-wide referendum and presented to President Sanford at graduation (May, 1982). The President's Honor Council was created the following year to promote and represent the ideals embodied by the Honor Commitment.

The Duke Student Honor Commitment differs from other university honor codes in one fundamental way: it is strictly a personal commitment that is not enforceable by any judicial or regulatory action. Each student is responsible for thoughtfully determining his or her own concept of honor and then adhering to that standard according to his or her conscience. It is hoped that your concept of honor will develop and mature during your Duke career.

It is the goal of the President's Honor Council to help establish and reinforce the Duke Student Honor Commitment as a cherished tradition of Duke University. We trust that the accumulation of individual acceptances of the Honor Commitment will achieve this goal.

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*bulletin of*  
**Duke University**  
**1989-90**

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*Information and Regulations*

**Trinity College of Arts and Sciences**  
**The School of Engineering**

EDITOR  
Judy Smith  
SENIOR EDITORIAL ASSISTANT  
Elizabeth Matheson  
BULLETIN COORDINATOR  
W. Paul Bumbalough

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Duke University does not discriminate on the basis of race, color, national and ethnic origin, handicap, sexual orientation or preference, sex, or age in the administration of educational policies, admission policies, financial aid, employment, or any other University program or activity. It admits qualified students to all the rights, privileges, programs, and activities generally accorded or made available to students. For further information, call Dolores L. Burke, Equal Opportunity Officer, (919) 684-8111. Duke University has adopted procedures for investigation and remedy of complaints involving discrimination. See the chapter "Campus Life and Activities."

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# University Calendar, 1989-90

## Fall, 1989

<b>August</b>	
24	Thursday. Orientation begins. Assemblies for all new undergraduate students
28	Monday. 8:00 A.M.; Fall semester classes begin.
29	Tuesday. 4:00-6:00 P.M. Drop/Add begins, Intramural Building
30-31	Wednesday and Thursday. 8:30 A.M.-12:30 P.M. and 2:00-4:00 P.M., Drop/Add, 103 Allen Building
<b>September</b>	
1	Friday. 8:30 A.M.-12:30 P.M.—Drop/Add continues, 103 Allen Building
4	Monday. Labor Day, classes in session
5-8	Tuesday through Friday, 8:30 A.M.-12:30 P.M. and 2:00-4:00 P.M. Drop/Add continues, 103 Allen Building
<b>October</b>	
13	Friday. Last day for reporting midsemester grades
13	Friday. 6:00 P.M. Fall break begins
18	Wednesday, 8:00 A.M. Classes resume
27-29	Friday-Sunday. Parents' Weekend
<b>November</b>	
6-9	Monday-Thursday. Registration for spring semester, 1990, 103 Allen Building
22	Wednesday, 12:30 P.M. Thanksgiving recess begins
27	Monday, 8:00 A.M. Classes resume
<b>December</b>	
7	Thursday, 6:00 P.M. Fall semester classes end
8-10	Friday-Sunday. Reading period
10	Sunday. Founder's Day
11	Monday. Final examinations begin
16	Saturday. Final examinations end

## Spring, 1990

<b>January</b>	
8	Monday. Orientation begins
10	Wednesday. Registration and matriculation of new undergraduate students
11	Thursday. 9:00 A.M. Spring semester classes begin
12	Friday. 4:00 P.M.-6:00 P.M. Drop/Add begins, Intramural Building
15-19	Monday-Friday. 8:30 A.M.-12:30 P.M. and 2:00 P.M.-4:00 P.M. Drop/Add continues, 103 Allen Building
22-24	Monday-Wednesday. 8:30 A.M.-12:30 P.M. and 2:00-4:00 P.M.—Drop/Add continues
<b>February</b>	
23	Friday. Last day for reporting midsemester grades
<b>March</b>	
9	Friday, 6:00 P.M. Spring recess begins
19	Monday, 8:00 A.M. Classes resume
<b>April</b>	
2-4	Monday-Wednesday. Registration for fall semester, 1990, and beginning of registration for summer terms
25	Wednesday. 6:00 P.M. Undergraduate classes end
26-29	Thursday-Sunday. Undergraduate reading period
30	Monday. Final examinations begin
<b>May</b>	
5	Saturday. Final examinations end
11	Saturday. Commencement exercises begin
13	Sunday. Graduation exercises. Conferring of degrees

# University Administration

## General Administration

H. Keith H. Brodie, M.D., LL.D., *President*

### COMMITTEE OF EXECUTIVE OFFICERS:

Phillip A. Griffiths, Ph.D., *Provost*

Ralph Snyderman, M.D., *Chancellor for Health Affairs  
and Dean of the Medical School*

William G. Anlyan, M.D., D.Sc., *Chancellor*

Eugene J. McDonald, LL.M., *Executive Vice-President*

Joel L. Fleishman, LL.M., *Senior Vice-President*

John J. Piva, B.A., *Senior Vice-President for Alumni Affairs and Development*

J. Peyton Fuller, A.B., *Vice-President, Planning and Treasurer*

William J. Griffith, A.B., *Vice-President for Student Affairs*

Patricia C. Skarulis, M.A., *Vice-President for Information Systems*

Andrew G. Wallace, M.D., *Vice-President for Health Affairs*

John F. Adcock, B.S., *Vice-President and Corporate Controller*

Tom A. Butters, B.A., *Vice-President and Director of Athletics*

Thomas E. Dixon, M.B., *Vice-President for Administrative Services*

N. Allison Haltom, A.B., *Secretary of the University*

## Arts and Sciences and Trinity College

Richard A. White, Ph.D., *Dean*

Thomas A. Spragens, Jr., Ph.D., *Associate Dean*

Charles W. Byrd, Jr., Ph.D., *Assistant Dean for Academic Affairs*

Thomas D. Mann, A.B., *Assistant Dean for Administration*

Lee W. Willard, Ph.D., *Assistant Dean for Planning and Development*

## Trinity College

Gerald L. Wilson, B.D., Ph.D., *Senior Associate Dean*

Martina J. Bryant, Ed.D., *Associate Dean*

Elizabeth S. Nathans, Ph.D., *Associate Dean and Director of the Premajor Advising Center*

Mary Nijhout, Ph.D., *Associate Dean and Director of Health Professions Advising Center*

Ellen W. Wittig, Ph.D., *Associate Dean*

Caroline L. Lattimore, Ph.D., *Assistant Dean*

Deborah A. Roach, Ph.D., *Assistant Dean*

Robert P. Weller, Ph.D., *Assistant Dean*

## The School of Engineering

Earl H. Dowell, Ph.D., *Dean*

Marion L. Shepard, Ph.D., *Associate Dean for Undergraduate Affairs*

## Student Affairs

William J. Griffith, A.B., *Vice-President for Student Affairs*

### Counseling and Psychological Services

Jane Clark Moorman, M.S.W., CCSW, *Director*

John C. Barrow, Ed.D., ABPP, *Assistant Director*

Rolfs S. Pinkerton, Ph.D., ABPP, *Psychologist*

Christine Bell, M.S.W., CCSE, *Social Worker*

Kenneth Rockwell, M.D., *Psychiatrist*

Elinor Roy Williams, M.S.W., CCSW, *Assistant Director*

Thomas E. Sibert, M.D., *Psychiatrist*

Joseph E. Talley, Ph.D., ABPP, *Psychologist*

### Cultural Affairs

Susan L. Coon, M.A., *Director*

Linda Carl, Ph.D., *Assistant Director*

### International House

Carlisle C. Harvard, B.A., *Director*

### Minority Affairs

Caroline L. Lattimore, Ph.D., *Dean*

### Placement Services

Laurence P. Maskel, Ph.D., *Director*

Patricia O'Connor, Ed.D., *Corporate Relations Specialist*

Johnnie Lawrence, *Assistant Director*

Dian H. Poe, A.B., *Career Counselor*

### *Religious Life*

William H. Willimon, M.Div., S.T.D., *Dean of the Chapel*  
Nancy A. Ferree-Clark, M.Div., *Associate Minister to the University*  
Mary Parkerson, A.B., *Chapel Development Officer and Administrative Assistant to the Minister to the University*  
Joe Creech, B.A., *Inter-Varsity Leader*  
John Wall, Ph.D., *Chaplain to Catholic Students*  
David Sweat, *Chaplain to Baptist Students*  
Hubert F. Beck, M.Div., *Chaplain to Lutheran Students*  
Frank A. Fisher, M.A., *Chaplain to Jewish Students*  
Earl H. Brill, Ph.D., *Chaplain to Episcopal Students*  
David O. Jenkins, M.Div., *Chaplain to Methodist Students*  
John Hamilton, M.A., *Navigators Staff Person*  
Douglas Humphrey, B.S., *Campus Crusade for Christ Representative*  
Susan D'Arcy Fricks, M.Div., *Presbyterian Campus Minister*

### *Residential Life*

Richard L. Cox, M.Div., Th.M., Ed.D., *Dean*  
Ella E. Shore, M.R.E., M.A., *Associate Dean*  
David W. Jamieson-Drake, Ph.D., *Assistant Dean*  
Frank H. McNutt, B.A., *Assistant Dean*  
Karen L. Steinour, Ph.D., *Assistant Dean*  
Charles M. VanSant, M.Div., *Assistant Dean*  
Benjamin Ward, Ph.D., *Assistant Dean*  
Barbara L. Bushman, A.B., *Coordinator, Student Housing*

### *Student Activities*

Homai McDowell, M.M.S., D.B.A., *Director, Office of Student Activities/Student Affairs Computer Education Center; and Student Affairs Financial Adviser*  
Linda Ellis, A.B., *Financial Manager*

### *Student Health*

Howard J. Eisenson, M.D., *Director*  
Suzanne R. Kozel, M.H.A., *Administrative Director*  
Penny Sparacino, R.N., *Nursing Supervisor, University Infirmary*

### *Student Life*

Suzanne Wasiolek, M.H.A., *Dean*  
W. Paul Bumbalough, A.B., *Assistant Dean*

### *University Union*

Jake Phelps, B.A., *Director*  
Peter Coyle, A.B., *Associate Director*  
Beth Budd, *Program Advisor*  
Krista Cipriano, B.F.A., *Coordinator, Arts and Crafts Center*  
Gloria Wagner, *Financial Adviser*

*Student Services*



A number of resources within the University are relied upon by undergraduate students for counseling and information relating to both academic and personal matters. In addition, the University provides a variety of services for students in areas such as health care and postgraduate employment. Some of these resources and services are available through the office of the individual school and college; others are provided by University-wide offices and departments. For additional information consult the *Bulletin of Undergraduate Instruction*.

## Administrative Offices of the School and College

### TRINITY COLLEGE OF ARTS AND SCIENCES

**The Dean of Arts and Sciences and Trinity College, Dr. Richard White.** The Dean of Arts and Sciences acts as the University's chief academic, budget, and executive officer for the Arts and Sciences departments (some thirty in number) and for selected interdisciplinary problems.

The Dean is responsible for developing and maintaining the quality of the academic programs in Arts and Sciences in consultation with appropriate faculty and students and for planning and organizing efforts to generate funds for the operation of the departments and programs. The Dean recommends to the Provost policies and budget needs concerning academic affairs. He implements the policies and acts as chief budget officer in relation to them.

The Dean is the University's executive officer for the academic affairs of undergraduate students in Trinity College of Arts and Sciences, and he recommends to the Provost policies concerning such affairs. The Dean presides at meetings of the UFCAS. He is assisted in executing these responsibilities by the Associate Dean of Arts and Sciences and Trinity College and the Academic Deans.

**The Associate Dean of Arts and Sciences and Trinity College, Dr. Thomas A. Spragens, Jr.** The Associate Dean assists the Dean in carrying out his various responsibilities. In consultation with the Academic Deans of the college and the Directors of Undergraduate Studies in the various departments and programs of Arts and Sciences, the Associate Dean recommends to the Dean administrative policies and budget needs of the college. The Associate Dean also participates in the work of selected University and UFCAS committees, reviewing programs and policies within the jurisdiction of the college.

**The Senior Associate Dean of Trinity College, Gerald L. Wilson.** The Senior Associate Dean of the College coordinates the work of the Trinity College staff and serves as its review officer in cases involving appeals on decisions of the Academic Deans of the College and on academic appeals of the Undergraduate Judicial Board. The Senior Associate Dean also confers with students who have not cleared their accounts with the Bursar.

**Associate Deans of Trinity College Martina Bryant, Elizabeth Nathans, Mary Nijhout, Gerald Wilson, and Ellen Wittig. Assistant Deans of Trinity College Caroline Lattimore, Deborah Roach, and Robert Weller.** The Associate and Assistant Deans of Trinity College are often referred to as the students' "Academic Deans." In the college they are responsible for a wide range of activities. In general, the Academic Deans advise students about academic matters, careers, fellowships, preprofessional planning, Program II, foreign study, and any other issues of academic concern to students; supervise individual student's progress toward graduation and certify completion of degree requirements; administer and coordinate programs; provide information about programs, advising, policies, procedures, and regulations to faculty members requesting it; enforce academic regulations; serve on various UFCAS, University, and TCAS committees; act as editors of, or as liaisons with editors of TCAS publications such as the *Undergraduate Bulletin*; and perform other duties delegated by the Dean or Associate Dean of Arts and Sciences and Trinity College.

Associate Dean Elizabeth Nathans serves as Director of the Pre-Major Advising Center for freshmen and for sophomores who have not declared a major. The other Academic Deans are divisional advisers-in the humanities, the natural sciences, and mathematics, and the social studies divisions-for all students who have declared a major. (See Administration of the College, above.) The relationship between these Academic Deans and the faculty advisers is a complementary one. Faculty advisers have primary responsibility for advising about major courses and requirements. The Academic Deans monitor graduation requirements, handle requests for exceptions, and deal with unusual academic problems and any change of status questions.

## THE SCHOOL OF ENGINEERING

**Dean Earl H. Dowell.** The Dean of the School of Engineering has overall responsibility for instruction and research in the school as well as for the educational experience and welfare of its students. The Dean works with various constituencies including the University administration, faculty, students, and alumni on matters of general policy and delegates responsibilities within the school to members of his staff.

**Associate Dean Marion L. Shepard.** The Associate Dean has responsibility for academic matters pertaining to undergraduates, and for working with the academic departments in helping to establish student's programs of study. He counsels with freshmen before they arrive on campus, and through summer correspondence with them, assists in making preliminary selection of courses for the fall semester. He also plans and directs the orientation of the freshmen. Under his supervision, engineering faculty members serve as advisers to students. He approves leaves of absence, courses to be taken elsewhere, the dropping and adding of courses, academic probation, dismissal or withdrawal from the school, transfer into or out of the school, and similar matters. He serves as the Dean's deputy in representing the school on campus, among alumni, friends, supporting industries, and governmental organizations. He also provides primary liaison with the Office of Placement Services.

## FACULTY ADVISING

Apart from academic counseling of students by faculty members whom they come to know on an informal basis, faculty advising of undergraduates in Trinity College and the School of Engineering takes place in three primary ways. First, in Trinity College of Arts and Sciences, faculty members serve in the Premajor Advising Center as general aca-



ademic advisers to groups of freshmen and premajor sophomores and are available for individual conferences; second, in the School of Engineering, freshmen and sophomores are counseled by special faculty advisers before the students choose their department; and third, in all departments, the director of under graduate studies and other faculty advisers are available to assist students concerning academic matters pertaining to their departments.

## Student Affairs

**Vice-President for Student Affairs, William J. Griffith, 106 Flowers.** The Vice-President for Student Affairs has the ultimate responsibility for most noncurricular aspects of a student's activity and welfare and works directly with the following offices in fulfilling that responsibility.

**Counseling and Psychological Services, Jane Clark Moorman, Director, Page Building.** The CAPS staff provides a coordinated and comprehensive range of counseling and psychological services to meet the unique needs of individual students in regard to their own personal development.

Services are available to all undergraduate, graduate, professional, and allied health students enrolled in Duke and include evaluation and counseling/psychotherapy regarding personal concerns of a wide variety. These include family, social, academic, career, and sexual matters. The professional staff is composed of psychologists, clinical social workers, and psychiatrists who are experienced in working with young adults. Individual, couples, and group counseling and psychotherapy are utilized in helping students resolve their concerns once the student and staff member have identified together the most helpful alternative.

Students with indecision about career plans can receive individual or group counseling from professional career counselors. Career testing and/or a computerized career guidance system called DISCOVER may be used. A career library is maintained, which includes a wide selection of vocational and educational program resource materials to assist students in choosing a career and/or further training programs in graduate or professional study. The library is available for all Duke students whether they are involved in counseling or not.

CAPS also offers time-limited seminars and groups focusing on personal development. These groups have the advantage of pooling resources and support while at the same time teaching skills. In the past, such groups have covered coping with stress and tension, exploring career goals, assertiveness, enhancing relationships, and understanding eating disorders. However, other seminars may be offered to meet student interest.

Another important function of CAPS is the availability of the staff to the entire University community for consultation and educational activities regarding student development and mental health issues affecting not only students, but the campus community as a whole. The staff works with other campus personnel including administrators, faculty, resident advisers, Student Health Service staff, Religious Life staff, the Office of Placement Services, Freshman Advisory Counselors, PISCES, Project Wild and other student groups in meeting whatever needs of students are identified through such liaisons.

Standardized testing is also administered for the university community by CAPS, including graduate and professional school tests such as the LSAT, MCAT, and GRE.

CAPS maintains a policy of **strict confidentiality** concerning information about each student's contact with CAPS staff members. Such information can be released, however, upon the student's specific written authorization. Initial evaluation and brief counseling/therapy, as well as career and skills development seminars are covered by the student health fee. There are no additional costs for these services. If appropriate, a referral may be made to other staff members or a variety of local resources including multidisciplinary mental health professionals in private practice and clinic settings.

CAPS offices are centrally located in Page Building, West Campus. Appointments may be made by calling 684-5100 Monday through Friday between 8 A.M. and 5 P.M. However, if a student's concern needs immediate attention, that should be made known to the secretary, and every effort will be made to arrange for a counselor to talk with the student immediately.

**Office of Cultural Affairs, Susan Coon, Director, 109 Page.** The Office of Cultural Affairs, located just off the entrance of Page Auditorium, is responsible for the creation, coordination, and implementation of many of the cultural and popular entertainments which take place on the campus. The office is directly responsible for the Duke Artists Series, Quadrangle Pictures (35 mm film program), the Chamber Arts Society Series, and the Mary Lou Williams Jazz Festival; it also schedules the use of Page Auditorium and directs the use of this hall. For the Summer Session Office, Ms. Coon directs the Duke University Summer Festival of the Arts, and works with the Institute of the Arts. Performances relating to campus, drama, music, and arts organizations are facilitated through this department's Page Box Office, which also serves all other programs. In addition to these arts-related activities, the Duke University Yearly Calendar is published and distributed from this office. In order to avoid conflicts, all campus events should be recorded by the calendar office as early as possible. The office also serves in an advisory capacity to student groups sponsoring major events.

**International House, Carlisle C. Harvard, Director, 2022 Campus Drive.** International House is the center of cocurricular programs for more than 400 students from 69 countries who are presently enrolled at Duke. Programs which assist students from abroad in participating in the life of the Durham and Duke communities include: an intensive orientation program at the beginning of the academic year; the International Friends Program (formerly Host Family Program), in which interested international students may become acquainted with American families; the Duke Partners Program which pairs an American and a visiting partner for weekly meetings to practice English and to learn about each other's cultures; the International Wives Club, which provides a structure for international women to meet with American women in an informal atmosphere; the Speakers' Bureau, which arranges for international students to speak at civic and social groups as well as schools in the Durham community; intermediate-level English conversation and grammar classes which meet twice a week; the Friday coffee break in the basement of the Chapel which is sponsored by Campus Ministry especially for internationals and friends. The International Association is a student organization which includes a significant number of American members, as well as international students. The association plans social and cultural programs which emphasize personal contact and the informal exchange of ideas among students from diverse backgrounds. Included are weekly open-houses with lectures, films, pot-luck dinners, or parties; periodic trips outside of Durham; and an annual International Day on campus which draws visitors from throughout the area. Additional information may be obtained by writing to Carlisle C. Harvard, Director, International House, 2022 Campus Drive, Duke University, Durham, North Carolina 27706.

**The Office of Minority Affairs, Caroline L. Lattimore, Dean, 107 Union West.** In 1972 the administration of Duke University established the Office of Black Affairs to meet the needs of black students. Six years later (1978), the name was changed to the Office of Minority Affairs (OMA). This office is an interdisciplinary/student service component of the University which attempts to assist minority students in their adjustment to student life. Its very existence suggests a commitment on behalf of Duke University towards implementation and centralization of services designed to address individual problems in our minority student population.

Within its organizational structure, OMA has five divisions: (a) the *administrative support staff* consists of undergraduate students who assist the Dean and the administrative secretary with clerical matters and general office operations; (b) the *counseling staff* is com-

posed of graduate and/or professional students who offer peer counseling and advice to each minority undergraduate; (c) the *tutoring staff* is composed of undergraduate, graduate, and professional students who offer tutorial services in mathematics and chemistry; (d) the *research and development staff* conducts and offers statistical and historical research relevant to the programs, projects, and services of OMA; (e.) the *executive staff* consists of the Dean and the administrative secretary who organize and manage all OMA organizational and fiscal matters. Within the organizational structure of OMA, all staff members work to achieve the following objectives: to offer quality and humanistic counseling and advising for minority students; to advocate and promote quality human relations among the Duke University student body, faculty, and staff; to serve as a resource for student support services, faculty, and students on matters relating to minority students.

The major program components of OMA are: Counseling in Academic and Social Affairs (CASA), the Tutorial Program in the sciences and other courses, and the Duke PREVIEW program (DPP). In coordinating these diverse services, OMA provides a mechanism through which these programs function.

The CASA program for undergraduates was designed to function as a supportive agency emphasizing various social, personal, and academic concerns. While providing specialized counseling services for minority students, CASA's primary functions have been to reach those students who may be experiencing difficulty, to assist them, and/or to refer them to support services which may be beneficial to them. Additionally, CASA works closely with students who are progressing well in the University while serving as a channel of communication for minority students. The CASA staff offers counseling through outreach, referrals, and organized group activities. Individual counseling, group learning, guidance-related activities, and professional activities are areas of concentration in the counseling process. CASA also encourages its counselees to explore and test their interests and skills in a variety of academic and professional fields.

In conjunction with the Departments of Mathematics and Chemistry, Physics, Biology, etc., OMA has initiated a tutoring program to facilitate higher achievement and improve the academic performance in these disciplines. The tutoring program offers individualized tutoring services for those students who need such assistance. Efforts are made to provide assistance as soon as possible through early identification. The tutoring program is free to all students who qualify for financial aid. The program also assists students in identifying tutors in other academic areas, if needed. Tutors meet weekly with the students and maintain continuous dialogue with CASA counselors, classroom instructors, University administrators, and University deans.

The Duke PREVIEW Program (DPP) was designed to ease the precollege student's personal transition from high school to college. This multiracial program introduces students to academic and student life at Duke University. The program offers concentrated academic experiences.

While simultaneously providing academic enrichment, PREVIEW through individual, group, and peer counseling provides supportive relationships to enhance the social growth of the participants.

The Dean of the Office of Minority Affairs is responsible for the management and direction of all OMA operations. These include a broad range of responsibilities such as budgetary and payroll matters, research projects, official correspondence, individual and group counseling, public relations, and policy making, and coordination of the CASA and tutorial programs. The Dean of OMA maintains continuous dialogue with the Pre-Major Advising Center, the Academic Deans' staff, CAPS, the Office of Student Affairs, Student Activities, the Offices of Undergraduate Admissions and Financial Aid, the Religious Life staff, the Placement Office, and numerous student organizations. All students are encouraged to utilize the services of the Office of Minority Affairs. Individual and group conferences with OMA staff members may be scheduled daily.

**Office of Placement Services, Laurence Maskel, Director, 214 Page.** The staff of the Office of Placement Services is the liaison between Duke students and potential employ-

ers. Students seeking permanent employment, career apprenticeships, or information about alumni in the Duke Network may consult the staff member who has the responsibility for each area. Members of the staff are available to help students plan a program which will provide a variety of employment opportunities in their career interest fields. A library of general and specific career information is available for students to use, and a list of Duke alumni who have agreed to talk individually with students about various career fields is also available. The Office of Placement Services cooperates with other departments to plan seminars to give students an opportunity to talk with people in a variety of career fields, sponsors seminars on identifying career options, and offers sessions on interviewing and other techniques for finding employment.

**The Office of Religious Activities, William H. Willimon, Dean of the Chapel.** The Dean of the Chapel and a combined staff of twenty-two are responsible for providing a diversity of ministry which takes seriously Duke University as a pluralistic religious community. This broad ministry includes services of worship (both in Duke Chapel and in other locations in the University), programs of religion and the arts, opportunities to develop caring and serving communities, and opportunities to respond to critical social issues. Persons in the University are given an opportunity to help direct and shape this ministry and to participate in its many committees and programs. Chaplains and campus ministers are also available for individual counseling with students and others in the University community.

**Office for Residential Life, Richard L. Cox, Dean, 209 Flowers.** The Dean for Residential Life is concerned with the development on the campus of a residential community supportive of a good educational experience. These concerns are addressed by the Dean and his staff through the housing of undergraduates in the residence halls, through advising students regarding personal problems, and through assisting students to plan and present educational and cultural programs within the residence halls. Over one-hundred Resident Advisers (RAs), who are staff members of the Office for Residential Life, reside in the residence halls and are directly responsible for the satisfactory administration of the student residences and their programs. They are also available for counseling students and/or referring them to the various personnel services which provide specialized advice or counsel.

**The Office of Student Activities, Homai McDowell, Director, 101-3 Bryan Center.** The Office of Student Activities coordinates undergraduate group activities and advises both undergraduate and graduate clubs and organizations. The office serves as a liaison between the University administration and campus groups, clubs, and organizations. It is a clearinghouse for information on reserving rooms for film showings, meetings, and parties, as well as for information on obtaining services from other University departments.

The office offers workshops and other instructional and programmatic aids to promote the development of leadership and organizational skills within student groups, and to foster interaction among club officers. The office also administers the Student Affairs Leadership Assistance Program and coordinates the participation of clubs and organizations in such activities as Black Student Weekend and Student Activities Day. The Financial Manager advises club treasurers and provides instruction in bookkeeping, budgeting, and fundraising.

Opportunities for learning a variety of job skills are available under the office's internship program. Student interns have opportunities to either design or develop their own jobs, or to get hands-on experience in areas such as advising, leadership training, university administration, programming, public relations, auditing, financial management, and data processing.

The office also coordinates a variety of community service projects, including Share Your Christmas and serves as a liaison between the Duke community and the Volunteer Services Bureau of Durham.



**Office of Student Life, Suzanne Wasiolek, Dean, 109 Flowers.** The Dean for Student Life is responsible for advising individual students regarding personal or judicial problems. She also develops the orientation programs for freshmen and transfer students. The coordination of the application of the general rules and regulations of the University and the files on student cocurricular honors, responsibilities, and membership are handled in her office.

The Assistant Dean for Student Life, Paul Bumbalough, works with all participants in the judicial process and coordinates the student advising system.

Dean Wasiolek and her assistant work with the Freshman Advisory Council (FAC), which is composed of upperclass men and women who are selected for qualities of responsibility and leadership. Members of the FAC are assigned to a small group of freshmen and, during orientation, they welcome their groups and help acquaint them with the University. The Office of Student Life also works with entering transfer students and the Transfer Committee, plans and implements Parents' Weekend, assists handicapped students, and coordinates the Student Health and Student Insurance policies.

**The University Union, Jake Phelps, Director, Bryan University Center.** The Bryan University Center, in the heart of the West Campus, is the hub of student, cultural, and service activities. It houses, among other groups, the University Union which brings students together in carrying out its stated purpose—to stimulate, promote, and develop the social, recreational, cultural, educational, and spiritual activities of the Duke University community. The Union sponsors a broad program including lectures, concerts, recreational activities, dances, and exhibits adapted to the leisure time interest and needs of individuals and diverse groups within the University and Durham communities. Also included under its auspices are services such as the Scheduling and Information Office and a copy facility; Student Locator Service; video-screening room; and creative opportunities such as the Craft Center, original film productions and the campus' closed-circuit cablevision broadcasting system. While most of these activities are headquartered in the University Center, the Union programs are campus-wide.

## Student Health Services

**Student Health Program, Howard J. Eisenson, M.D., Director, Pickens Building.** The Duke Student Health Program provides a wide range of health care, health education, and health maintenance services. In addition to general medical care, Student Health provides programs which encourage students to make informed decisions leading to healthy life styles. The Student Health Program also acts as a liaison when students need care not available as part of Student Health's services.

The Student Health Program operates in three primary locations:

1. Student Health Clinic in the Pickens Health Center, located on the corner of Erwin Road and Trent Drive. Pickens Health Center offers students many important clinical support services, all in one building. These include a pharmacy, a laboratory, x-ray services, and a health education center.
2. The University Infirmary, located on the fourth floor of Duke Hospital, South Division. The Infirmary provides short-term, in-patient treatment of illnesses too severe to manage in residence halls or apartments, yet not severe enough to require hospitalization.
3. The Sports Injury Treatment and Prevention Clinic, located on West Campus, in Card Gym. The Sports Medicine Clinic offers treatment for exercise related complaints and injuries.

The Student Health Clinic at Pickens Health Center is open during both regular and summer sessions, and operates on an appointment system (call 684-6721). The University Infirmary is open from the beginning of the fall semester until graduation day in the spring. If students need urgent care when the Pickens Health Center is closed, they should call the Infirmary (684-3367).

All currently enrolled full-time students and part-time degree candidates are required to pay the student health fee. All students enrolled in summer school are required to pay a student health fee. Current students registered for upcoming fall classes who remain on or near campus during the summer but who are not enrolled in classes may choose to pay an optional student summer health fee, and retain their health care coverage. All fees are paid directly to the Bursar's office. Information regarding the fee is available at the Bursar's office.

The resources of other medical services at Duke University Medical Center are available to all Duke students and their spouses and children; however, charges for such services are the student's responsibility as are the charges for services from physicians not associated with Duke University.

### **Policy Regarding Medical Excuses.**

1. Class absences may be excused only by the Academic Dean upon certification from Student Health Program practitioners. Such certification must indicate that the illness (a) is of such a nature that it is necessary to restrict a student's activities and/or (b) medication has been prescribed which impairs the student's ability to study or attend class; and/or (c) the student has been a patient in the University Infirmary. In cases where illness occurs away from campus, appropriate information must be presented to a Student Health clinical provider.
2. Absences cannot be excused by the deans if they result from minor illnesses which do not require that a student's activities be restricted or if Student Health Program staff were not contacted during the actual time of the illness.

Students who have any questions concerning these policies and procedures or individual cases should contact their Academic Dean.

**Confidentiality.** Confidentiality attached to the student's health record is carefully maintained. Release of any health information requires prior permission of the student involved. Such a policy is strictly enforced irrespective of the requesting source (e.g., University official, parents, family of the student, governmental authorities, physicians not immediately involved in the care of the student).

### **IMPORTANT TELEPHONE NUMBERS**

Scheduling Appointments at Pickens Health Center: 684-6721  
University Infirmary: 684-3367  
For Emergency Transportation (University Public Safety) day or night  
On campus: Campus Police: 684-2444  
Off campus: Durham Ambulance Service, Durham telephone: 477-7341

### **STUDENT HEALTH CLINIC HOURS AT PICKENS HEALTH CENTER\***

At Pickens Health Center	
Monday-Friday	8:00 A.M.-6:30 P.M.
Saturday	10:00 A.M.-1:30 P.M.
Sunday	2:00 P.M.-4:30 P.M.

\*Hours reduced slightly during midwinter break and during summer sessions.

### **FOR AFTER HOURS PROBLEMS (when Pickens Health Center is not open)**

University Infirmary: 684-3367  
Medical Center Emergency Department: 684-2413

### **THE DUKE STUDENT ACCIDENT AND SICKNESS POLICY**

The Duke Student Accident and Sickness Policy is provided by Blue Cross and Blue Shield of North Carolina, in association with Hill, Chesson and Associates, Durham, North Carolina. The insurance policy provides coverage for hospitalization, major medical expenses, certain surgical services and limited treatment and diagnosis on an outpatient basis. There are also provisions available for coverage for the student's spouse and dependent children.

Participation in some supplemental health insurance program is strongly suggested for students. All full-time and part-time degree candidates are required to enroll in the Student Accident and Sickness Policy unless they sign a waiver that they are covered by other comparable insurance or accept responsibility for all medical expenses. The policy number and name of the insurance is required on the waiver.

Detailed information regarding this insurance coverage is available in the Dean for Student Life's office. Student Health also offers information on insurance coverage via its student patient advocacy service.

## Department of Housing Management

**Fidelia Thomason, Director, 218 Alexander, Apartment E.** The Department of Housing Management, an Administrative Services Division auxiliary, is responsible for residence hall and apartment facilities on East, West, Central, and North Campuses. The department has responsibility for the following services: physical maintenance of the residential buildings with work performed by the Physical Plant Department in the residence halls and Housing Management in the apartments, custodial care of the residential facilities, key issue and control (rooms and buildings), storage of personal effects, and control of furniture and equipment. Housing Management is also responsible for summer assignments and graduate student academic year and summer assignments in Central Campus Apartments. Business matters related to residential fees and rents come under the purview of the department. Residence hall and apartment business matters should be discussed with the Housing Administration office, 218 Alexander, Apartment B. Questions about a student's facility service needs should be discussed with the residential area service office: 101R House D, 684-5486, for residents of main West Campus except Few; House VOO, 684-5559, for residents of Few and Edens; Hanes House desk, 684-5394, for residents of Hanes, Hanes Annex, and Trent; Gilbert-Addoms desk, 684-5320, for residents of East Campus; and 217 Anderson Street, 684-5813, for residents of Central Campus.

## Office of Alumni Affairs

**Laney Funderburk, Director, 614 Chapel Drive.** The Alumni Affairs Office initiates and sponsors a variety of activities and services linking Duke students with one of the University's best resources-its alumni. The freshman class directory, one of the most closely read booklets freshmen receive, is sponsored by the General Alumni Association and is published by Alumni Affairs. The Associate Director assists in student-related activities, the Student Alumni Relations Committee (SARC), the Duke Network, and the Conference on Career Choices. These programs are designed to strengthen student-alumni relationships and increase student involvement generally. Many get-togethers are planned for new and current students both on and off the campus. This staff person also cooperates with the senior, junior, and sophomore class officers in planning class activities and projects.

Several ASDU leaders and class officers serve on the Board of Directors of the Duke University General Alumni Association and its committees. *Duke Magazine*, published by Alumni Affairs, is offered by subscription to parents of students.





*Academic Information*



## Miscellaneous Academic Policies and Procedures

### PROCEDURE FOR RESOLUTION OF STUDENTS' ACADEMIC CONCERNS

Trinity College of Arts and Sciences provides formal educational opportunities for its students under the assumption that successful transmission and accumulation of knowledge and intellectual understanding depend on the mutual efforts of teachers and students. Ideally, the college offers a range of learning experiences in which students strive to learn enough to be able to test their ideas against those of the faculty, and faculty, through the preparation of course materials and the freshness of view of their students, discover nuances in their disciplines.

Sometimes, however, student-faculty interrelationships in certain courses give rise to concerns that, for whatever reason, can inhibit successful teaching and learning. When this occurs students often need assistance in resolving the issues.

The faculty and administration of Trinity College of Arts and Sciences attempt to be genuinely responsive to all such matters and a student should not hesitate to seek assistance from faculty and administrative officers in resolving problems.

Questions about course content, an instructor's methods of presentation, the level of discourse, criteria for evaluation of students, or about grades or administrative procedures in a course, should be directed to the instructor of the course. If a student believes that productive discussion with the instructor is not possible, courtesy requires that the instructor be informed before the student refers questions about the course to the Director of Undergraduate Studies or, in his or her absence, to the Chairman of the department. If a student's concern involves a departmental policy rather than an individual course, the student should first confer with the Director of Undergraduate Studies in the department. A list of the names, addresses, and telephone numbers of the various Directors of Undergraduate Studies can be found in the University Directory. Staff members in the department offices can assist in arranging appointments with the Directors. When necessary, Directors of Undergraduate Studies may refer students to the department Chairman.

A student in doubt about how to proceed in discussing a particular problem, or who seeks resolution of a problem, is encouraged to confer with an academic dean of Trinity College.

In those exceptional cases where a problem remains unresolved through informal discussion, a formal procedure of appeal to the Associate Dean and Dean of Arts and Sciences and Trinity College is available. A student may initiate this more formal appeal procedure by bringing his or her problem—with assurance of confidentiality, if requested—to the attention of the Associate Dean of Arts and Sciences and Trinity College, who will

request information about the nature of the issue and about the earlier efforts made to deal with it. The Dean of Arts and Sciences and Trinity College will be informed about the situation.

## Statement on Sexual Harassment of Students

**Definition.** Sexual harassment in an academic environment is understood to be the intentional misuse of authority by a faculty member or an administrator by conduct focusing on the sexuality of a student in the academic context.

**Examples.** Sexual harassment can take a variety of forms, from verbal suggestion or innuendo and repeated physical overtures to requests for sexual relationships accompanied by implied or overt threats of inducements concerning a student's grades, recommendations, academic progress, or professional standing.

**Policy.** Sexual harassment may be egregious or less serious. Regardless of degree, it abuses academic relationships and has no place in the university. Appropriate sanctions will be imposed. Sexual harassment may rise to the level of misconduct justifying dismissal.

**Procedures.** 1. The Provost will appoint a committee consisting of two faculty members, two students, and two administrators, with an equal number of men and women. The terms of service will be for two years, renewable twice, and the terms will be staggered. In addition, he will appoint a professional counselor as a staff member of the committee. The Executive Committee of the Academic Council will nominate the faculty members of the committee; the Provost will select two students, one male and one female, from a slate of nominations submitted by ASDU and by the Graduate and Professional Students Council. After consultation with the Executive Committee of the Academic Council, the Provost will appoint the two administrators from the ranks of those administrators who are not academic deans nor have reporting relationships to academic deans. They might, for example, be appointed from the Office of Student Affairs or from the Office of Counseling and Psychological Services.

The Executive Committee of the Academic Council, after consultation with the student organizations, will nominate one of the two faculty members to chair the committee. The chairman should be encouraged to accept the appointment for at least two terms.

2. The names and office numbers of the members of this committee shall be publicized, and *students shall be invited to discuss with any member of the committee any incident that a student perceives as sexual harassment.* Committee members will inform the chairman, when it appears appropriate, of such contacts and may discuss the incident informally with other members of the committee.

3. The chairman shall convene the committee if further action is considered necessary.

a. Prior to the time the committee determines whether a complaint should be formally investigated, one or more members of the committee may discuss the complaint with the faculty member or administrator without in any way disclosing the identity of the complaining student.

b. Committee members (or the committee) in discussing the complaint with the student should offer counseling services through the committee and should explain the options of mediation and resolution and fact-finding for determining probable cause. After the initial discussions, the committee member (or the committee) and the student may come to the conclusion that sexual harassment did not, in fact, occur, and the case shall be dropped.

c. After the discussion with the complaining student and any informal discussion with the faculty member or administrator, the committee shall determine whether to initiate a formal investigation of the complaint. If the committee decides to initiate an investigation, the accused faculty member or administrator shall be informed and the name of the complaining student disclosed to him or her.

d. In carrying out the investigation, the involved faculty member or administrator shall be apprised of the evidence that had been submitted to or gathered by the committee. The faculty member or administrator shall be given a fair opportunity to respond to such evidence as well as to present any additional evidence that the faculty member considers relevant.

e. After this investigation the committee may find that the incident does not warrant further proceedings or may resolve the dispute in a manner that is accepted by all parties involved. If the dispute cannot be resolved in one of these two ways, and the committee has found probable cause, the committee shall forward the information it has collected, a report summarizing this information, and the committee's evaluation of the information to the dean of the school of the accused faculty member or administrator.

4. The dean, after considering the information presented to him by the committee, shall determine the action which he or she considers appropriate. The dean shall inform the faculty member or administrator by letter of the dean's decision and of the faculty member's right to a hearing. If the faculty member does not request a hearing, the letter shall become a part of the faculty member's file and the specified corrective action shall be taken.

5. If the complaining student or the faculty member requests a hearing, a hearing shall be held to determine whether the faculty member had engaged in sexual harassment.

a. The hearing shall be held before the Provost or his designate who shall determine the procedures to be followed. If the Provost finds that no sexual harassment occurred, no action shall be taken against the faculty member and no record of the complaint shall appear in his file. If the Provost finds that sexual harassment occurred, he shall so inform the parties and determine any corrective action to be taken. The decision of the Provost may be appealed, by either the student or the faculty member, to the President.

b. If the corrective action determined by the Provost is dismissal, a further hearing shall be conducted in accordance with the procedures for cases involving faculty dismissal (See Appendix C, Section V).

**Records.** 1. The chairman of the committee shall keep records of each complaint. These records should, at least, include (1) the sex of the complaining student and faculty member or administrator involved, (2) the student-faculty or student-administrator relationship, (3) the school or department involved, (4) the nature of the complaint, and (5) the action of the committee. These records are for the internal use of the committee only; they should be retained in the committee files for ten years and then destroyed.

2. The committee shall prepare an annual report of its activities, which shall retain complete confidentiality as to the names of persons involved. This report will be sent to the President, the Provost, the Executive Committee of the Academic Council, ASDU, and the Graduate and Professional Students Association.

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*Residential Information*



## Residential Facilities

### TRINITY COLLEGE OF ARTS AND SCIENCES THE SCHOOL OF ENGINEERING

Within the framework of the regulations of the community, individual students are responsible for their own decisions and choices. The University adheres to the premise that social regulations and activities of the various living groups must be supportive of the general welfare of the total University community and must be protective of the interests of individuals and minority viewpoints within each living group. Most of these regulations are enforced by the members of the community. In addition to the social regulations formulated by each living group, there are certain policies specified by the University that apply to students living within the residence halls and pertain to the safety and security of students and the orderly functioning of the dormitories. Any student or group of students may recommend a change in the regulations by presenting a proposal to the Residential Policy Committee, an advisory committee on matters of housing to the Dean for Residential Life.

The residential facilities of Trinity College and the School of Engineering are available to all full-time single undergraduate students who have been in continuous residence since their matriculation (this includes transfer students) as well as to students on leaves of absence or off-campus, provided they have filed the appropriate papers by established deadlines to the Housing Coordinator in the Office of Residential Life. Duke University residential facilities include residence halls and Central Campus Apartments. No undergraduate student may live in University housing for more than four years. Students who enroll in graduate or professional programs prior to receiving the undergraduate degree (such as "three/two" programs) are not eligible for undergraduate housing during their fifth year.

**Freshman Residence Halls.** Freshmen reside in all-freshman houses, the majority of which are coed, clustered on three of the four residential areas. The housing assignments are made by lottery to the houses. Within the residence halls, single, double, and triple rooms are available. January freshmen live in all-freshmen houses as well as in some East Campus upperclass houses.

**Upperclass Residence Halls.** Upperclass students live in coed and single-sex residence halls on East and West Campuses. There are three types of living groups: independent lottery, selective, and independent commitment. The independent lottery living groups have their spaces filled by a general housing lottery. The selective living groups, which include the fraternities, select their members. The commitment houses select a third

new members from among the students who have made application to the house and the other two-thirds are lotteried from among the remaining applicants. Within all of the upperclass houses, except those located in Edens, there are triple as well as single and double rooms.

**Central Campus Apartments.** Located on Central Campus is a complex of University owned and operated apartments which accommodates over 750 undergraduate students. The remainder of the complex houses a cross-section of students from various schools and colleges of the University. This facility is part of the undergraduate lottery space, and assignment to this space satisfies the University's guarantee to provide eight semesters of housing.

## Residential Regulations

(See also Student Life Section for additional information.)

In its residential policies and procedures, Duke University seeks to foster a climate of responsibility, initiative, and creativity on the part of individuals and living groups. A successful residential community is one in which students take pride in their physical surroundings and assume active responsibility for the maintenance of acceptable standards of public behavior in their living areas.

While students are entitled to a general expectation of privacy within the confines of their own individual rooms (although, of course, extraordinary and compelling circumstances may occasionally require that this expectation be institutionally suspended), the University emphatically refuses to regard either students' immediate living quarters or their commons areas as privileged sanctuaries where students may act with absolute impunity and without regard to minimum standards of civility, decency, and respect for the rights of other members of the University community. Moreover, occupancy of an individual room or of a residence hall does not confer any proprietary interest or right of ownership on the part of the living group as a whole. The student and the living group are both properly viewed not as *owners* but as *custodians* of that living space (with all of its physical amenities) which has been assigned to them. Inherent in this custodial relationship, of course, is the right of the University to promulgate criteria governing the circumstances under which this relationship may be entered into, may be maintained in good standing, or may be terminated.

While the majority of problems incurred between or among roommates can be resolved by the students, with or without assistance; there are some cases in which a stalemate occurs. The Office of Residential Life will, in those cases, reserve the right to convene an arbitration board to resolve the problem. The decision of the board is final.

**House Closing in Residence Halls with Security Systems.** Some houses are locked by 12:00 A.M. or at an earlier time agreed to by the house membership. Each student must obtain an entrance card key for his/her house from the Service Office in his/her area. A deposit is charged to the resident's Bursar's account. The deposit is refunded if the entrance card key is returned within 48 hours after the student vacates the building. Entrance card keys are not to be loaned or borrowed.

**Signing Out.** There is no requirement that a student leave a record of his or her whereabouts if he or she leaves the Duke campus. However, in order that students can be located when needed in an emergency and in the interest of students' safety, it is recommended that students leave records of their whereabouts and anticipated time of return with the residential staff or with roommates when they are out of the residence hall.

**Meetings in Residence Halls (use of Residential Lounge Facilities).** Lounge facilities are provided within the residence halls for the use of those Duke University students living in the residential unit in which the lounge is located. Use of the lounge must conform to all regulations established by the University and individual units. Permission for



students or groups of students who are not members of the residential unit to use the lounges must be secured in advance from the House Council of the resident unit and should be reported to the Service Manager. Any use of lounges must be approved and registered with the House Council. The care of the facilities within the lounge areas is the responsibility of the residential unit. Any group given permission to use the lounges is responsible to the residential unit for any damages which might occur as a result of their use of the area. Housing Management will hold the residential unit responsible for damages or necessary cleaning.

**Guests.** Students may have overnight guests for reasonable periods of time subject to the specified residence hall visitation policies for each residential unit. However, continued use of a residence hall room or Central Campus apartment by person or persons other than those to whom the room or apartment is rented is prohibited. Overnight guests should not be entertained during examination periods. The Colleges reserve the right to ask a guest to leave if University policies and residence hall regulations are not obeyed or if complaints are received from members of the resident community. A student may not have guests over the objection of his/her roommate(s). Violation of any of these regulations could lead to nonresidents being charged with trespassing and residents (both guest and host) having their housing licenses revoked.

## **HOUSING LICENSE**

Prior to occupancy of space in a University residence hall or Central Campus apartment, each student must sign a housing license. Licenses for the residence hall and Central Campus Apartments must be filed with the Housing Coordinator in the Office of Residential Life. Refer to the appendices for copies of the residence hall license and the Central Campus housing license.

## **REVOCATION OF THE HOUSING LICENSE**

Residence hall occupancy should be understood as a privilege which is to be maintained under certain standards. This includes abiding by the terms of the housing license as well as upholding general standards of civility, decency, and respect for the rights of other members of the University community.

All terms of the housing license (see Appendix A for copies of the residence hall and Central Campus licenses) are designed to protect the health and safety of students and to provide for the comfort and privacy of students who have contracted to occupy University housing.

Any conduct which reflects a serious disregard for the rights, health, safety, and security of other occupants of University housing will be reason for revocation of this license and/or disciplinary action. Such conduct includes, but is not limited to, tampering with fire and security equipment or use/possession of firearms, weapons (including starter pistols), and explosives (including fireworks). When a license is revoked due to disciplinary action, the University will not refund any portion of the payment for the semester in progress.

In addition to violators of specific housing license terms, a student who has been a repeated violator of housing terms and/or University regulations or who has shown blatant disregard for others is subject to eviction.

## **HOUSE DUES POLICY**

Duke University has a strong commitment to a residential community supportive of a good educational experience. The activities of each residential house which contribute to this experience are possible only through a financial commitment of the members of that house. Therefore, students living within a residential hall are obliged to pay the dues upon which the residents agree. (It should be noted that the University has taken this obligation into account when determining a student's financial aid package.)

1. It is required that house dues be agreed upon by at least a two-thirds majority vote of the living group membership in a well-announced meeting attended by at least three-fifths of the members or through a poll of all residents. Further, it is understood that this is a private matter between the individual and his/her living group. Each living group is required to set dues to a \$25 per person minimum for each semester.

2. Students who move from one living group to another can expect a prorated refund from their former living group and are expected to pay prorated house dues to the new living group.

3. Students who have accepted membership in a particular living group in which they continue to reside and, at a later time, accept membership in another group shall be obligated to pay dues to both groups unless a written agreement is negotiated with the groups involved.

4. Independents involuntarily placed in fraternity sections or fraternity men involuntarily placed in independent sections are not obligated to pay house dues. They may choose to pay social dues if invited to do so by the fraternity or the independent house; however, they are obligated to pay a small annual fee (\$5) if they use the commons room and television and must help with normal expenses due to damage in common areas.

5. Should a selective living group be unable to fill its assigned space with its members, up to 10 percent of the space (with approval of the Office of Residential Life) may be allocated to "affiliate" members who have a contractual financial arrangement with the selective group. Such persons have full social privileges within the selective group and are often referred to as "friends of the house."

## ASSISTANCE FOR LIVING GROUPS IN COLLECTING DUES

The Office of Residential Life will assist in collecting dues *only if* house treasurers submit to that office a list of those delinquent in payment by September 29 for first semester dues and February 2 for second semester dues along with a statement indicating that portion of dues which is used to buy alcohol (the Office of Residential Life will not assist in the collection of living group dues which is used to purchase alcohol). Also, in order to have the assistance of that office in collecting dues, house treasurers *must* attend the Student Affairs Workshop for House Treasurers during the fall semester.

**Appeals.** Every house must make available to all students the option of appealing in-house for a waiver of dues. Although some groups prefer to have such appeals heard by the House Judicial Board, it is recommended that appeals be heard in a closed meeting of the appellant and the House Treasurer (and, perhaps, House President) with the Resident Adviser as observer and adviser. The contents and decision of such appeals are to be held in the strictest confidence. When a waiver is granted, it may be assumed unless otherwise specified in the decision, that the appellant retains all social privileges in the house. The hearing panel may recommend full payment, installment payment, or nonpayment. Decisions of the hearing panel may be appealed to the appropriate judicial body.

N.B. Joining a fraternity or a sorority, participating in other organizations, taking no interest in activities of the living group, or deciding to spend one's discretionary funds in another way do not constitute valid grounds for exemption from paying dues.

**Sanctions.** Graduating seniors failing to pay living group dues which have been properly established will be referred to the appropriate judicial body for adjudication. Other students failing to pay living group dues which have been properly established must move to another location (a) determined by the Office of Residential Life at the end of the fall semester or (b) determined by the general lottery at the end of the spring semester for the following fall term, whichever is appropriate. If entering the lottery in the spring, such students will be grouped behind all other students entered into the lottery.

## LIVING OFF-CAMPUS

Students above the freshman level who wish to live off campus should file the appropriate forms with the Housing Coordinator.

If a student plans to live off campus and return to university housing at a later time, he/she *must* request by the deadlines published by the Office of Residential Life that his/her housing deposit be held up to one calendar year, after which it would be refunded and the housing guarantee revoked. Such requests should be made by completing the appropriate form in the Office of the Student Housing Coordinator in the Office of Residential Life.

## POLICY FOR REFUND OF RESIDENTIAL DEPOSITS, RENT PREPAYMENT, BOARD PAYMENTS, AND RENTS FOR RESIDENCE HALL STUDENTS

**Residential Deposits.** The one hundred dollar (\$100) residential deposit paid upon matriculation to Duke will be refunded if the Office of Residential Life is notified by the currently enrolled student prior to July 1 of his or her intent to move out of residence hall housing for the fall semester and by December 1 if cancelling for the spring semester.

**Fall Rent Prepayment.** The fifty dollar (\$50) rent prepayment will be refunded if the Office of Residential Life is notified by the student prior to the last day of spring semester classes of his or her intent to move out of residence hall housing.

**Move from Residence Halls to Central Campus Apartments.** Students who move from the residence halls to Central Campus Apartments will have their room rent payment credited to the Central Campus Apartment rent and will receive full refund of unused board payment (unused points) if the board contract is terminated at the time of the residence hall cancellation. Students also have the option of maintaining or changing the board contract at this time.

**Cancelling a Residence Hall Assignment.** Undergraduate students who wish to move off campus, to move to the residence halls, to take a leave of absence, or to withdraw from the University should contact the Office of Residential Life to request cancellation of the contract. Request for cancellation due to a leave of absence or withdrawal from the University will be granted. A request for cancellation to move off campus or to the residence halls will be granted only if an eligible replacement (eligibility is determined by the Office of Residential Life) is found to move into the space created by the cancellation.

Undergraduate students who have been assigned a room who wish to cancel their assignment must notify the Office of Residential Life in writing. Students who cancel their assignments after the contract has begun will be entitled to a refund of the unused rent, the amount to be determined according to the date the keys are returned to the service office and/or the date Housing Management inspects the room and confirms that the space has been vacated. In any case a minimum of \$50 will be retained by the Department of Housing Management. Refunds of unused board payment (unused points) will be given if the board contract is terminated at the time of room cancellation.

## FIRE SAFETY

Any living group or individuals planning a party on Duke University property which has a decorations such potential fire hazards as paper draping, hay, bamboo, etc., must obtain clearance for the use of decorations from the Safety Manager of the Duke Public Safety Office (684-5909). Approval from the Safety Office does not relieve a living group of its responsibility for prompt clean-up or of its financial responsibility for damages (including any excess cleaning required by Housing Management). Open fires are not permitted on Duke University property except as approved by the Safety Office. Fires must be reported to Public Safety and Housing Management. Residents will be charged for fire damage resulting from neglect.

## PRIVACY OF STUDENT'S ROOMS AND APARTMENTS

Students who reside in University residences are assured the privacy of their rooms and apartments and freedom from the admission into or search of their rooms or apartments by any unauthorized persons; however, the University is obligated to maintain reasonable surveillance of the residential areas to promote an environment consistent with the aims of an academic community. To foster these conditions the following regulations are now in effect:

1. Housing Management personnel may enter assigned rooms or apartments at reasonable hours on days designated by either bulletin board notices or similar prior notification for the purpose of carrying out their assigned tasks and functions. Other personnel may enter assigned rooms when accompanied by proper authorization from the appropriate administrative official (see section 2 c). In the case of residence halls, this notification, when feasible, shall be posted on the residence hall bulletin board stating what dates rooms will be entered. Maintenance personnel may enter assigned rooms or apartments at reasonable hours for the purpose of carrying out their assigned tasks and functions. Housing Management personnel are expected to inspect the maintenance work done within twelve (12) working days to validate satisfactory completion of such work. Employees in the above categories may report on the condition of University facilities and equipment, on violations of the housing license, or on situations which jeopardize the overall health and safety of the residence hall population. All personnel in the above category shall leave written notice stating the purpose for entering. Upon receipt of this notice the occupant may contact the area Service Office to discuss the entry. The written notices must, as well, advise the occupant that subsequent investigation or repair may henceforth occur at any time during the normal work week of Housing Management or maintenance personnel. (Note: General rule or enforcement procedures will not be founded on information relating to the personal contents of rooms from personnel mentioned unless such contents are specifically prohibited by University regulations or by the housing license published in advance.)

2. No person, with the exception of those listed in section 1 above, shall enter assigned rooms or apartments except under the following conditions:

- a. consent of the occupant(s); or
- b. presentation of a properly drawn legal search warrant; or
- c. presentation of a written authorization from the Dean for Residential Life, the Dean for Student Life, or their representatives, as appropriate; or
- d. emergency situations or immediate threat to preservation of the building and the safety of occupant(s) and/or the residential population.

3. Reports made as a result of inspections related to physical facilities and/or furnishings will be handled by the Department of Housing Management in accordance with the existing residential regulations as published in bulletin form by the University.

4. Written authorization from the deans must specify the reasons for believing such a search is necessary, the objects sought, and the area to be searched.

5. The request for a search, if approved by the designated authorities, shall be kept in records with the authorization until the time of the student's graduation and shall be available to the student for examination. The records will be kept completely separate from the student's permanent record. Should the search figure in any trial proceeding within the University, the authorization shall be attached to the trial record; if no action is taken following an authorized search, notation of this fact shall be filed with the authorization. No action shall be taken in regards to objects found but not specified on the authorization of the search.

In the absence of a legally drawn search warrant, no general searches shall be conducted by University personnel except with the possession of the written authorization of all these above-mentioned deans, stating the reasons for the search and the specified objects sought, or under circumstances deemed to be of extreme emergency by these deans or the officer on each campus in charge of maintenance.

## CARE OF RESIDENCE HALL ROOMS AND ADJACENT CAMPUS AREAS

Though limited custodial services for common use areas are available, a student is responsible for the care of his or her room and furnishings and is required, as a condition of occupancy, to keep the room reasonably clean and orderly. The University reserves the right for personnel to enter at reasonable hours to inspect the condition of any student's room in accordance with the current privacy policy.

Nails, screws, tacks, or adhesives on any walls or woodwork of the residence are prohibited. The utilities, wiring, locks, or screens should not be altered in any way. (See Housing License for more detailed information.)

Games and other activities which may damage lawns or shrubbery adjacent to residence halls are not permitted. Defacing or painting buildings and adjacent installations, sidewalks, trees, and shrubbery is prohibited.

No student shall enter custodial, utility, or maintenance spaces within the residence halls unless accompanied by University-authorized custodial or maintenance personnel. Use of roof areas is prohibited.

Complaints and requests pertaining to maintenance and services should be reported to the Service Office in the appropriate residential area.

Housekeeping services such as cleaning the bathroom, sweeping, mopping, vacuuming, and trash removal will be provided on weekdays during the academic year (excluding holidays) in common areas of the residence halls. Cleaning of individual rooms is the responsibility of the resident(s).

Living groups are expected to take responsibility for cleaning up after parties and other events that create extraordinary messes. Any extraordinary cleaning that must be performed may be charged to the living groups. In as much as housekeeping time spent on extraordinary clean-up is time spent away from the normal duties of keeping the buildings clean, extraordinary clean-up may be deferred until such time as the normal housekeeping tasks are complete. Extraordinary cleaning is generally defined as clean-up of (1) excessive trash, (2) conditions that present hazards to people, furnishings, or buildings, such as broken glass, standing liquids, flammable trash and health hazards, and (3) other conditions that require unusual effort, such as removal of eggs, shaving cream, etc. A cleaning supplies closet has been designated for each living group's use. Members of the living group have 24-hour access to and responsibility for the cleaning equipment provided by Housing Management. Each closet contains a mop, mop bucket, dustpan, soap, toilet tissue, Barf Clean, and trash bags.

All living groups are responsible for cleaning trash beyond the normal amount on the grounds adjacent to their residence halls. Failure to have the area cleaned before 10 A.M. the day after an event will result in a minimum charge of \$25 to be determined by the Physical Plant office; however, the enforcement procedure indicated in the above paragraph is also applicable to failure to clean grounds adjacent to the residence halls.

Extra trash containers are available from the Physical Plant office by calling 684-3611 at least two days prior to the event.

**Damage Policy.** Students will be held responsible for damages that occur in their rooms and apartments. Living groups will be charged for damage to public areas of the houses. Students and living groups will be billed and may appeal charges in accordance with procedures published by the Department of Housing Management. (See the housing licenses and handbooks for information. Additional information may be obtained from the Department of Housing Management.) Living groups similarly will be charged for damage to public areas, equipment and furnishings, sidewalks, shrubbery, and lawns; repair costs will be billed to the students in accordance with procedures established by the University after consultation with the Residential Policy Committee. Damage to the residence halls which costs less than \$50 is not charged to the living group. (See below for the exceptions of excessive cleaning of commons areas.) At the end of each academic year, outstanding living group charges will be divided equally among the group's mem-

bers and charged to their Bursar's accounts. Littering which causes excess work to clean will be charged to the students and living groups involved.

During the fall semester 1987, the damage policy outlined below was approved by the Residential Policy Committee (RPC) in consultation with ASDU, IFC, UHA, and the Council of Freshman Presidents.

Periodically, the Department of Housing Management will supply the Office of Residential Life with the statistics necessary to calculate the damage index which is formulated as follows and reflects the number of damage dollars per resident:

$$\frac{\$ \text{ amt. of invoice} + (\# \text{ incidents} \times \$100)}{\# \text{ of residents}}$$

Once the damage index is calculated, it is compared to a standard damage index. This figure may be reviewed periodically and adjusted to reflect changing behaviors that result in a lowered standard index. (The standard index for 1988-89 was 3.)

If a living group's damage is:

- 2 • standard index, the group will receive a probation letter that will remain in effect for the remainder of the academic year.
- 3 • standard index, the group will be denied use of its commons room for a weekend, defined as Friday afternoon to Monday morning. When a commons area is closed, the space may not be used for any purpose during that period.
- 5 • standard index, the group will be denied use of its commons room for three weeks.
- 7 • standard index, the group will be denied use of its commons room for five weeks.

N.B. A living group which previously has been denied use of the commons room for five weeks and fails to reduce its damages to the standard index will subsequently be referred to the Residential Judicial Board; however, a group may be referred to the Residential Judicial Board no more than two times. The third time the group will appear before a Hearing Panel to determine if dissolution of the group is justified.

Indices will be recorded month by month and cumulatively. If a group is sanctioned one month and fails to hold its damages to the standard level during the remainder of the academic year, the sanction will be one level higher than the previous sanction. Cumulative damage indices will be compared with a cumulative standard level (standard index • month of the academic year) and sanctioned according to the above guidelines.

Any reported cases of necessary excessive cleaning of public areas, the cost of which is not levied against the living group, will be considered as another incident to be included in that group's damage index.

## STORAGE

During the academic year, Housing Management provides storage for empty trunks and luggage without charge in the area designated for each residence hall. Students should consult their Service Offices for information. All items placed in storage for the academic year must be removed prior to the last day of final examinations for the spring semester. Nonstudents and students residing off-campus may not store personal effects at any time in the residence hall storage rooms. Items placed in storage must have a Housing Management storage tag and be well marked with owner's name tag and permanent mailing address. Receipts given at time of acceptance must be surrendered by the student on withdrawal of storage items. Items left in storage rooms at the end of the spring term for which summer storage fees have not been paid will be disposed of in the best interest of the University.

The Department of Housing Management provides space for storage of personal or group-owned items during the summer months on a fee paid basis and in approved areas only. Any personal effects or group-owned items left in the residence halls not in approved storage areas (including, but not limited to, commons rooms, closets, and above suspended ceilings) may be disposed of without notice or reimbursement to the owner. Designated closets have been made available to some living groups for storage of group-owned items such as file cabinets, party supplies, and fraternal material. These closets may not be used by members of the living groups for storage of personal possessions. Housing Management is not liable for damage to or loss of stored living group items except as the fee paid storage terms allow.

## **LIVING GROUP BUILDING IMPROVEMENTS AND RENOVATIONS POLICY**

Any alterations and/or renovations to residence halls must be approved by the Director of Housing Management.

Any living groups wishing to make permanent or attached alterations, additions, or renovations to residence halls must submit plans, drawings, and other related information to the Director of Housing Management for evaluation.

If approved, such alterations, additions, or renovations will be accomplished at the living group's expense. Housing Management will inspect the completed work to make sure approved materials and plans were used and that the quality of construction is acceptable. Any construction which does not pass inspection must be removed or corrected as directed by Housing Management and at the living group's expense.

Anything attached to the building will become the property of and maintained by Duke University. No reimbursement will be considered if the group is subsequently moved.

Any changes of a permanent or attached nature not approved through official channels may be removed at the convenience of the University and subsequent repairs made at the group's expense.

Any nonattached additions a living group wishes to make to the public areas of its residential hall (e.g., extra furniture, art work, portable bars) need not be submitted to the Director of Housing Management for approval so long as the items are truly portable. However, the living group should understand that Housing Management may require the group to remove (or may remove at the group's expense) any item which may damage the facility, hinder maintenance of the facility, or present a health or safety hazard. If the living group wishes to leave group items in the public areas of its residence hall over the summer, the group should get written permission from its Service Manager to do so. The living group is responsible for removing and storing all items which it does not have written permission to leave. Items left *without* written permission may be removed and disposed of at the group's expense. Items left *with* permission may have to be removed during the summer to accommodate summer users or maintenance projects. In such cases, Housing Management will take every precaution not to damage the item and to return it intact. However, should the item be damaged or lost, no reimbursement will be made to the group. Living groups are encouraged to seek their Service Manager's advice when considering nonattached additions.

## **BAR POLICY FOR RESIDENCE HALLS**

See also "Living Group Building Improvements and Renovations Policy."

1. No permanently attached bars will be allowed in living groups (after 1981). Bars built in University facilities which are affixed in any way to the building or which are too heavy to be moved will be destroyed at the University's convenience and at the expense of the living group, including necessary repairs to the facility.

2. Only movable (not attached to floor or building) bars will be allowed. The bar should be able to be removed from the building without damage to the bar or to the building.

## EXTERIOR SIGN POLICY FOR RESIDENCE HALLS

Exterior building signs identifying a living group will be permitted only in the immediate area of the residence. The sign must be provided by the group and approved jointly by the Director of Housing Management and the Dean for Residential Life. Only one sign per living group is allowed. Where two or more signs currently exist, any above the one allowed will need to be removed after reaching a point of disrepair.

All such signs will be mounted on the buildings by Housing Management at no cost to the group. Requests for sign approval and mounting should be made in writing to the Director of Housing Management and must include a sketch of the proposed sign, indicating proposed dimensions and colors, in ample time for approval before beginning to build the sign. Any repairs to existing signs must be approved by the Director of Housing Management.

## RESIDENCE HALL BENCH POLICY

Only approved living groups may place benches on University property. Benches will be permitted only in the area immediately adjacent to a particular residence unit. The bench may be put in place by the living group as long as the dimensions are no larger than 12' in length, and 5' in height from the ground, and 6' in depth. Any benches cemented in the ground which need to be moved for any reason will be cut off at ground level and not replaced in concrete by the University. Any bench too large to move in one piece will be separated into manageable pieces and reassembled using existing lumber without reimbursement to the living group for damages. Every effort will be made to retain the integrity of each bench when it is necessary to move a bench; however, the University will not be responsible for replacing concrete footings or materials damaged as a result of a move. Living group benches may have to be moved temporarily (e.g., for Commencement or summer programming). The specific design, including sketches noting dimensions, and desired location of a living group's bench must be submitted in writing to the Dean for Residential Life and the University Architect at least three weeks prior to the desired construction date. Approval for a bench must be received from the Dean for Residential Life and the University Architect. Note: This policy is currently under review and may be changed for the 1988-89 academic year. Inquire at the Residential Life Office.

## Annual Review of Residential Groups

The following statement of residential group standards and annual review is based on one initially drawn up by the Residential Life Committee to provide a mechanism for the continued improvement and support of the residential living group system.

The specific terms of this program are as follows:

1. Before the end of spring semester, each upperclass living group must file in the Office of the Dean for Residential Life the following information:
  - a. a constitution of the governmental structure of the group
  - b. a statement of the goals, standards, and proposed contributions to the residential program
  - c. a list of activities through which its members attempted to accomplish its stated goals in the current year
  - d. an outline of proposed activities for the following year
2. Early in the fall semester, the Office of Residential Life will submit each living group's Annual Review Report to a special committee which the Dean, or designee, will convene initially and which will be composed of the following:
  - a. an *ex officio* representative of the Office of the Dean for Residential Life who will chair the group
  - b. the President of ASDU or a representative
  - c. the President of IFC or a representative



- d. the President of UHA or a representative
- e. the Chairperson of the Judicial Board or a representative
- f. two faculty members appointed by the Dean for Residential Life, one each from Trinity College and the School of Engineering
- g. an academic dean appointed by the Dean of Trinity College
- h. a representative from the Office of Residential Life

This committee will review and evaluate the program of each living group, examining in particular the following:

- a. attainment of stated goals
- b. quality of group's program (educational/cultural, social, and charitable)
- c. disciplinary record
- d. damage record

The committee will then submit the results of its evaluation to the Dean for Residential Life. After the Dean reviews the recommendations of the committee, the living group presidents will be notified whether the group's program was determined to be outstanding, satisfactory, or in need of improvement, or unsatisfactory.

3. Presidents of the groups in need of improvement may be asked to meet with the committee chairman, or designee, and, when possible, another staff member of the Office of Residential Life. The purpose of this meeting is to offer suggestions for correcting deficiencies in the overall program of the living group. Following the meeting and through the spring semester, the living group will be expected to correct the program deficiencies identified by the committee. The following fall, the committee will review the program of the groups to ascertain whether the deficiencies are still present. If the committee finds insufficient improvement in a group's program, it may recommend that the group appear before a dissolution hearing panel.

4. Groups with an unsatisfactory program or with no report may be referred to the appropriate administrator for a possible dissolution hearing.

A similar review process is implemented for the freshman houses in the spring semester after the presidents of those groups submit their reports in February.

## **Residential Group Accountability for Community Standards**

Living groups are responsible for maintaining standards established by Duke University. If such standards are not maintained, the appropriate office in Student Affairs may call a hearing panel to determine whether a living group should be dissolved. The panel shall report its recommendation to the administration of the appropriate office in the Student Affairs division. It shall be the decision of the administrator as to whether a living group is dissolved. That decision may be appealed to the Vice-President for Student Affairs. The Vice-President's decision shall be final and binding.

The final decision regarding the continuation of a living group rests solely with Duke University.

Living groups may also be placed on the status of "warning," "probation," "interim suspension," or "suspension" by the administrator of the appropriate office in the Student Affairs Division.

## **Housing Policies for Selective Living Groups and Their Members**

The following housing policies for selective living groups are gathered together from the February 26, 1981 Report of the Student Affairs Trustee Committee in response to the Residential Life Section of *Directions for Progress*; "Social Fraternal Organizations Policies and Procedures, Duke University, July 1, 1979;" and "Residential Life: Policies and Procedures for Undergraduate Students, 1985-86."

Duke University is under no obligation to supply housing to any fraternity or sorority at the time of installation on the campus. While the Dean for Residential Life will consider the requests for housing from recognized fraternities or sororities, the University is under no time constraints to provide such housing.

In accordance with the guidelines adopted by the trustees in 1981, there is to be no greater number of fraternity living groups chartered. Furthermore, there is a 50 percent ceiling on the number of upperclass bed spaces on campus allocated to men and women's selective living groups (the number of selective bed spaces for men would be no more than 50 percent of the upperclass men's spaces on campus). Note: these guidelines are under review during the 1989-90 academic year.

## **POLICIES REGARDING SPACE ALLOCATED TO AND FILLED BY FRATERNITY LIVING GROUPS**

1. All fraternities are expected to fill 100 percent of their sections' bed spaces with initiated members of the fraternity ("brothers"). N.B. Only initiated brothers count toward fulfillment of this housing obligation; "friends of the house" (see 2b. below) and pledges do not count toward fulfillment of this obligation.

2. If a fraternity fails to fill 100 percent of its section's bed space with initiated members, but does fill 90 percent or more of its bed space with initiated members, the following rules apply:

*a.* the Office of Residential Life may elect to use any open spaces to house fraternity men from other fraternities;

*b.* if the Office of Residential Life does not elect to house fraternity men of its choosing to fill the unoccupied spaces, the fraternity may fill its unoccupied spaces with "friends of the house;" i.e., independent men who, upon mutual agreement with the fraternity, choose to live in the fraternity section, pay the dues required of them by the fraternity, and have social privileges within that selected group.

3. If a fraternity fails to fill 90 percent of its section's bed space with initiated members of the fraternity, the following rules and procedures apply:

*a.* the Office of Residential Life may, at its discretion, convene hearings to review:

*i.* the fraternity's continued presence in its current section and the question of relocation to a smaller section;

*ii.* the fraternity's continued presence in any University housing and the question of placing the fraternity in nonresidential status; or

*iii.* the fraternity's continued recognition as a living group and the question of revocation of the fraternity's charter.

4. Should the number of members exceed the space in the allocated section, the excess members (to be determined by the living group) would find it necessary to be assigned space in another fraternity section which has available space, to move to proportionately allocated Central Campus Apartment space, or to move off campus.

5. Rooms in selective houses that are identified by the Office of Residential Life as being large enough to be expanded from singles to doubles or doubles to triples may be so expanded upon election by the selective group or by institutional need as may be determined by the University.

6. Each selective living group is required to submit to the Housing Coordinator in the Office of Residential Life before November 15 (for spring semester) and February 15 (for fall semester) a list of eligible initiated members who will be living in the section for the following semester.

## **POLICIES REGARDING WHERE MEMBERS OF FRATERNITY LIVING GROUPS MAY RESIDE**

1. Members of a fraternity living group may reside only in the section of residence halls allocated to their group unless the number of members exceeds the space.

2. Any members unable to live in their section because their living groups have more members than beds, must either be assigned space in another fraternity with available space, must move to proportionately allocated Central Campus Apartments, or must move off campus. Those students moving off campus have the option of retaining their residential status if they arrange with the Housing Coordinator in the Office of Residential Life to have their housing deposits held for reinstatement in housing when space within the living group becomes available.

### **POLICIES REGARDING SPACE ALLOCATED TO AND FILLED BY INDEPENDENT SELECTIVE LIVING GROUPS**

1. All independent selective living groups are expected to fill 100 percent of their sections' bed spaces with members whom they select.

2. If the group fails to fill 100 percent of its section's bed spaces with members, the Office of Residential Life may, at its discretion, use the open spaces to house other students.

3. If the group fails to fill 90 percent of its section's beds spaces with members:

a. the Office of Residential Life may, at its discretion, permanently reallocate any or all empty spaces to other students

b. the Office of Residential Life may, at its discretion, convene hearings to review:

i. the living group's continued presence in its current section and the question of relocation to a smaller section;

ii. the question of whether or not to change the selective living group to non-selective status by which students are then assigned to the section by the Office of Residential Life.

4. Rooms in selective houses that are identified by the Office of Residential Life as being large enough to be expanded from singles to doubles or doubles to triples may be so expanded upon election by the selective group or by institutional need as may be determined by the University.

5. Each selective living group is required to submit to the Housing Coordinator in the Office of Residential Life before November 15 (for spring semester) and February 15 (for fall semester) a list of eligible members who will be living in the section the following semester.

### **GUIDELINES FOR INDEPENDENT SELECTIVE HOUSES\***

1. (A) New selectees for Selective Houses should be bound for a minimum two-year commitment.\*\*

(B) Residents who break the two-year minimum commitment to the house to re-enter the lottery be relegated to the very bottom of the lottery, after sophomores.

(C) Semesters taken "on leave of absence" or study programs away from Duke's Durham campus will not be considered in violation of the two-year commitment and will be counted as part of the two-year commitment.

2. As with other selective houses (i.e., fraternities), independent selective houses will be required to fill 90 percent of their bed space.

3. Independent selective living groups should adopt and maintain at least one charity, volunteer commitment or service project that is uniquely their own.

4. Independent selective living groups should run a satisfactory level of cultural and educational programs each semester.

5. Independent selective houses should maintain strong intramural sports and social programs, and whenever possible, look to interact with different groups on campus.

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\*These guidelines were prepared and submitted by the Residential Policy Committee and adopted by Dean Richard L. Cox, January, 1987.

\*\*This commitment may be amended by the Residential Life Office for independent selective houses with academic sponsors. (September, 1987; Residential Life Office)

6. All independent selective (and for that matter commitment houses) must maintain their status as active members of the UHA.
7. Independent selective houses should choose a member of the Duke Faculty or administration who agrees to serve as the dorm's advisor.
8. If, after review, a selective living group terminates a student's membership in the house, then that student may reenter the regular lottery without penalty. Review and any terminations are to be completed no later than February 15, to facilitate the housing office's administration of the spring lottery.

#### **GUIDELINES FOR INDEPENDENT SELECTIVE HOUSES WITH ACADEMIC SPONSORS\***

1. Adherence to the Guidelines for Independent Selective Houses.
2. Adherence to housing deadlines, policies, and procedures as published in the *Bulletin of Information and Regulations*, as decided by the Residential Policy Committee, and as outlined in the publication *Residential Life: Housing Assignment Policies and Procedures for Undergraduate Students*.
3. Adherence to the Annual Review Committee policies and guidelines (see page 34).
4. Some component of the academic program of the living group must take place in the residence hall; e.g., house courses, colloquia, faculty/student receptions, etc.
5. Some educational programming sponsored by the living group must be open to the entire community.
6. The programming conducted in the residence hall should be supported by the living group member dues as well as by financial contributions from the academic department sponsors and the Residential Life programming fund.
7. Resident Advisers will be required and will be selected through normal procedures with input from the academic sponsors.
8. Sponsors of the program must clearly state in the application materials their expectations and requirements of the students.

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\*Living groups such as the Language House and the Women's Studies House which are sponsored by academic departments.



*Student Life*



Duke University expects and requires of all its students full cooperation in developing high standards of scholarship and conduct. Each student is subject to the rules and regulations of the University as currently in effect or, from time to time, are put into effect by the appropriate authorities of the University.

Any student, in accepting admission, indicates his/her willingness to subscribe to and be governed by these rules and regulations and acknowledges the right of the University to take such disciplinary action, including suspension or expulsion, for failure to abide by the regulations or for other conduct adjudged unsatisfactory or detrimental to the University.

Responsibility for prescribing and enforcing rules and regulations governing student conduct rests ultimately with the Board of Trustees of Duke University, and, by delegation, with administrative officers of the University and of the schools and college. In the undergraduate college and schools, as well as in the University as a whole, many of these rules have been established over the years by cooperative action between students and administrative officers, and in the case of some rules, with participation of faculty members as well. Representative student organizations, such as student governments and judicial boards, and more recently, community-wide bodies of students, faculty, and administrators, have initiated academic and nonacademic conduct; and these proposals have been accepted by colleges and University officers and have become a substantial, if not all-inclusive, body of rules governing student life at Duke.

Similarly, the enforcement of rules in the undergraduate schools and college has traditionally been a cooperative endeavor of students and administrative officers, as well as faculty members who have participated in review and appeals committees and have advised with college and University officers about appropriate standards and procedures in such matters. The judicial structure of the University consists of a University Judicial Board, a Judicial Board for each of the communities within the University, and a Judicial Board for the residential units.

The judicial structure formalizes the tradition of shared participation by various members of the University and college community. Its viability, however, is dependent upon a mutual recognition by all members of the community of the need for high standards of scholarship and conduct, a willingness to exercise the personal and corporate responsibilities that accompany such recognition, and an appreciation of the different roles and responsibilities played by various members who participate in the life of the community. This last factor relates particularly to the role of students in determining and supporting high standards. In addition to the agreed upon monitoring and enforcement procedures outlined, the University administration reserves the right to intervene as needed.

*If you have any questions concerning University regulations, the judicial structure or procedure, contact Vice-President William J. Griffith (684-3737), 106 Flowers, Dean Sue Wasiolek (684-6488), 109 Flowers; or Dean Richard Cox (684-6313), 209 Flowers.*

## The Undergraduate Community

Students in Trinity College and the School of Engineering constitute an undergraduate community whose members are subject to the Undergraduate Community Code. Violations of the code and certain University regulations are adjudicated before the Undergraduate Judicial Board, composed of representatives of the student body, the faculty, and the administration. The constitution of the board and the procedural safeguards and rights of appeal guaranteed to students are set forth in Appendix C. Also provided is an alternative procedure for hearing certain cases by the Dean for Student Life alone or by that officer's appointee as well as an appeal procedure. The judicial code which follows was drafted and approved by the Judicial Review Committee during the spring semester, 1980 and amended during the spring semesters, 1982, 1983, and 1988.

**Supremacy of State and National Law.** On November 21, 1852, the General Assembly of North Carolina amended an act to incorporate Union Institute in order to create a Board of Trustees in perpetuity for Normal College then located in Randolph County. The amended act provided that the trustees could grant degrees and "do all other things for an institution of learning not inconsistent with the laws of this State and of the United States." The act was subsequently amended in 1859 to permit a change in the institution's name to Trinity College and again in 1924 when Duke University was established.

Since 1852 the Trustees of Duke University and their predecessors have been legally empowered to act "not inconsistent with the laws of this State and of the United States." Thus, to this date all officers of Duke University and those to whom their powers may be formally delegated are bound by laws of North Carolina and those of the United States.

The University is not an island. Students, faculty, administrators, and Trustees alike are subject to state and federal laws. Acceptance of admission to any of the undergraduate schools or colleges of this University carries with it the assumption of a sense of responsibility for the welfare of the community. Also assumed are obligations on the part of each individual to respect the rights of others, to protect the University as a forum for the free expression of ideas, and to obey the laws of the state and nation.

Acts in violation of North Carolina and United States law are necessarily in violation of the Undergraduate Judicial Code. Such acts when committed on University premises are within the cognizance of the Undergraduate Judicial Board unless otherwise expected. When committed off the University premises they may fall within the board's jurisdiction if constituting a direct or indirect threat to the University community whether or not the offense results in action by a regular civil or criminal court.

Proceedings under the Judicial Code of the Undergraduate Community before, during, or after any which may occur in the regular state or federal courts do not subject a student to "double jeopardy" because such jeopardy arises only in criminal law proceedings. Governments alone, not the University, enforce the criminal law. Action by the board or other University agencies enforce the terms under which a student has accepted admission to Duke University and all sanctions imposed relate to a student's status at the University.

**The Judicial Code of the Undergraduate Community.** Although the laws of North Carolina and the United States are incorporated in the Judicial Code, enumerated below and included in the following section on University regulations and policies are common infractions lying within the jurisdiction of the Undergraduate and Residential Judicial Boards. Conduct in violation of the code is punishable by sanctions contained in Appendix C, Art. IV (K) and Appendix D, Art. V of this bulletin.



## I. Academic Dishonesty

- A. Plagiarism: Expropriation of words, phrases, or ideas of another without attribution for the benefit of one who engages in the act of expropriation. (See "Use and Acknowledgement of Sources" in this bulletin.)
- B. Cheating:
  - 1. Obtaining access, without the instructor's permission, to an examination question or questions prior to the instructor's distribution of the examination.
  - 2. Copying or attempting to copy during an examination from another's work in progress or completed, handwritten, typed, or published without consent of the instructor.
  - 3. Without the instructor's permission, collaborating with another, knowingly assisting another or knowingly receiving the assistance of another in writing an examination or in satisfying any other course requirement(s).
  - 4. Committing fraud on a record, report, paper, examination, or other course requirement to be submitted to or in the possession of an instructor.
  - 5. Submission of multiple copies of the same or nearly similar papers without prior approval of the several instructors involved.
- C. Academic Contempt: In the satisfaction of any course requirement, failure to adhere to an instructor's specific directions with respect to the terms of academic integrity or academic honesty for that course requirement.

## II. Assault and/or Battery

- A. Battery: Any use of physical force against a person without his or her consent.
- B. Assault: Any threat of the immediate use of any degree of unauthorized physical force or an attempt to use such force which threatens or actual attempt gives rise to a reasonable apprehension of force against the person threatened as perceived by that person. (See also "University Regulations and Policies: Hazing" in this bulletin.)

## III. Taking, Converting, and Selling

- A. Theft: Any wrongful physical taking and carrying away of the personal property of another without the rightful owner's consent with an intention to deprive the owner of its use.
  - B. Larceny: Any wrongful physical taking and carrying away of the personal property of another without the rightful owner's consent and with an intention to convert it to the use of the taker and into the taker's own property or to convert it to the use of and ownership of a third party.
  - C. Embezzlement: Fraudulent conversion of another's personal property by one to whom the owner trusted it.
  - D. Fencing: Knowingly receiving or concealing stolen property.
- IV. Property Damage: Any damage to real or personal property owned by others including that owned by Duke University, especially fire equipment, as well as that owned by members of the University community and by visitors to the University. (See "University Regulations and Policies: Fire Equipment" in this bulletin and "Care of Dormitory Rooms and Adjacent Campus Areas.")

V. Breaking and/or Entry

- A. Breaking: Any bodily action or attempt by means of such bodily action intended to create an opening for access to real or personal property without consent of the owner of such property.
- B. Entry: Any physical bodily presence within real or personal property without consent of the owner. Such illegal entry includes trespass on unauthorized areas. (See "University Regulations and Policies: Roof and Ledge Areas, Unauthorized Access.")

VI. Disorderly Conduct

- A. Any action, committed without justification or excuse, that unreasonably disrupts the normal public use of public areas, or that substantially disturbs the peace and order of the University community. (See "University Regulations and Policies: Alcoholic Beverages" and "Noise.")
- B. Any grossly unreasonable and reckless conduct in the handling of things or substances ordinarily regarded as inherently dangerous or capable of becoming dangerous to other persons or to their real or personal property.

VII. Fraud

- A. Any intentional misrepresentation of fact in an attempt to induce another to surrender a right or property or to authorize the conferring of a benefit in reliance upon the misrepresentation.
- B. Forgery or alteration of documents, including course examinations, papers, or other required exercises, in an attempt to obtain a right or benefit or property.
- C. Obtaining a right or benefit or property under false pretenses.
- D. Unauthorized misuse of otherwise valid documents.

VIII. Bribery: Corruption of another for personal gain.

- IX. A. Preparation: Devising or arranging means or measures necessary for commission of a prohibited act.
- B. Attempt: Attempting any unlawful act specified in this Code by undertaking the intended action.

X. Contempt

- A. Failure to comply with direction, orders, or commands of any University judicial or police authority, or any academic or administrative official of the University acting in an official capacity. (See "University Regulations and Policies: Library Control Desk Inspections" in this bulletin.)
- B. Knowingly furnishing false information to any such authority or official of the University acting in an official capacity.

XI. Illegal Possession

- A. Any transporting to or storing on the campus or possession of firearms, weapons, explosives, or fireworks. (See "University Regulations and Policies: Fireworks, Other Explosives and Weapons" in this bulletin.)
- B. Any violations of the University's Alcohol or Drug Policy.

XII. Accessory to Commission of a Prohibited Act: Aiding or abetting or otherwise acting as an accomplice to commission of any prohibited act.

# University Regulations and Policies

Students should be familiar with the Judicial Code of the undergraduate community and with the following regulations and policies of the University. Violations are matters which are subject to adjudication before the Undergraduate Judicial Board.

## DUKE UNIVERSITY REGULATIONS REGARDING ALCOHOLIC BEVERAGES AND EVENT REGISTRATION

### INTRODUCTION

At Duke University students and employees are our most valuable resource, and their health, safety, and well being are extremely important. Officials of Duke University recognize that alcohol abuse can lead to major health problems. In addition, the safety and security of students may be jeopardized by incidents involving alcohol use and abuse. These regulations are premised on the belief that Duke students are mature individuals, capable and willing to follow and enforce the provisions of these regulations, with assistance from the Dean for Student Life and Public Safety. Failure to follow these regulations will result in the University taking appropriate action. Students will not jeopardize their University standing by seeking and receiving medical and/or counseling assistance for alcohol related problems.

The University has adopted the following regulations to govern the use of alcoholic beverages by students and the registration of events on its campus. This policy applies to two types of events: (1) those at which alcoholic beverages are present; and (2) those required to be registered, regardless of whether alcoholic beverages are present.

The event registration provisions apply only to registering an event with the Office of Student Life to insure that the sponsoring organization and/or individual(s) is (are) informed of all regulations pertaining to the use of alcohol and to the noise policy. This policy *does not* satisfy the requirements of reserving space in nonresidential facilities; sponsors must on their own initiative secure the space and satisfy any requirements.

This policy is premised upon the belief that Duke students are mature individuals capable of and willing to follow and enforce the provisions of this policy themselves, with assistance from the Dean for Student Life and Public Safety as set forth below. Failure to accept responsibility which comes from permitting alcohol on campus will result in the University taking appropriate action.

The effective date of this policy is August 15, 1986. The Vice-President for Student Affairs has charged the Dean for Student Life with the responsibility for implementing, interpreting and, in cases deemed deserving by the Dean, making exceptions to these regulations. These regulations may be amended from time to time at the discretion of the Vice-President for Student Affairs.

*NORTH CAROLINA LAW* (North Carolina General Statute Section 18B-101 *et seq.* The following is a summary of Article 3 of the statute.)

#### Sale to or Purchase by Underage Persons

1. Sale
  - a. It is against the law to sell or give beer or wine to anyone less than 21 years old.
  - b. It is against the law to sell or give liquor or mixed beverages to anyone less than 21 years old.
2. Purchase or Possession
  - a. It is against the law for a person less than 21 years old to purchase or possess beer or wine.
  - b. It is against the law for a person less than 21 years old to purchase or possess liquor or mixed beverages.
3. Aider and Abettor
  - a. Any person less than 21 years old who aids or abets another in violation of the above regulations shall be guilty of a misdemeanor, punishable by a fine up to \$500 or imprisonment for up to six months, or both.

- b. Any person over 21 years old who aids and abets another in violation of the above regulations shall be guilty of a misdemeanor, punishable by a fine up to \$2000 or imprisonment for up to two years, or both.
4. It is unlawful to use a fraudulent ID or to permit the use of one's ID by another to purchase or possess alcoholic beverages in violation of the above sections.
5. It is unlawful to give alcoholic beverages to an intoxicated person.
6. Conviction Report sent to Division of Motor Vehicles. Persons convicted of violating the above sections may automatically have their drivers license revoked for a period of one year.

In addition to the North Carolina law regarding the use of alcoholic beverages, Duke University has adopted the following regulations regarding alcoholic beverages and event registration.

#### DEFINITIONS

1. "Alcohol Beverages"-any beverage containing at least one-half of one percent (0.5) alcohol by volume, including beer, wine, liquor and mixed beverages.
2. "Common Container"-any keg, large bottle, punch bowl, trash can or other device used for storing or mixing a quantity of beverage greater than that which can reasonably be consumed by one person (and his/her guest).
3. "Event"-a party, concert, or other group social gathering held on the University campus attended by students (e.g., a wine and cheese reception in an academic classroom).
4. "Legal Age to Drink"-21 years of age and older. [Note: While the State of N.C. will not raise the legal age to drink beer and unfortified (table) wine until September 1, 1986, University policy will consider the legal age to drink all alcoholic beverages to be 21 as of August 15, 1986, the effective date of this policy.]
5. "Registered Event"-any event held on the University campus will be classified as either registered or unregistered. Events described in Section B.1. of this policy must be registered and must be held in accordance with the provisions of that section of the Policy.
6. "Sale"-any transfer, trade, exchange or barter, in any manner or by any means, for consideration.
7. "Unregistered event"-any event held on the University campus which is not required to be registered under Section B.1. of this policy is an unregistered event. An unregistered event must be held in accordance with the provisions of Section C of this policy.
8. "Use of Alcoholic Beverages"-possession, consumption, distribution, purchase, sale or transfer of alcoholic beverages.

#### A. GENERAL PROVISIONS APPLICABLE TO ALL EVENTS.

1. The use of alcoholic beverage is permitted only by those of legal age to drink and in accordance with N.C. law governing alcoholic beverages.
2. The sale of alcoholic beverages by students is prohibited. Alcoholic beverages may be sold by the University to students of legal age to drink at licensed premises.
3. The use of alcoholic beverages as a prize in a contest, drawing, raffle, lottery, etc. is prohibited.
4. All residential and social groups are responsible for designating a member to participate in an Alcohol Awareness Session at the beginning of each academic year. This representative must recognize that he/she is responsible for disseminating current information concerning the use of alcohol and the existing State and University regulations concerning its use to members of his/her organization.
5. Sponsoring groups and living groups remain responsible for the general tone of their social event, and by majority vote they may adopt regulations more limiting than the laws of the State and the provisions of this policy.
6. Alleged violations of this policy by groups and/or individuals shall be subject to adjudication by the judicial board(s).

## B. PROVISIONS APPLICABLE TO REGISTERED EVENTS.

### 1. Registration

- a. An event sponsored by an undergraduate student group must be registered if any of the following occur:
    - (1) scheduling of a nonresidential facility: e.g., Von Canon Hall, Card Gym, quads, etc.;
    - (2) participants include individuals other than dues paying members of the sponsoring group and one guest per attending member;
    - (3) sound amplification equipment is placed or directed outside (stereo speakers, live bands, etc.) in accordance with University policy; and/or
    - (4) attendees at event total 200 or more.
  - b. An event sponsored by any other entity must be registered (See B.2.) if any of the following occur:
    - (1) scheduling of a facility other than the facility of the sponsor (which may be a facility member, graduate or professional student group, academic department, etc.) with permission from the dean or department head in charge of the facility;
    - (2) alcoholic beverages are present and participants include students other than members of the sponsoring group or department and one guest per attending member; and/or
    - (3) sound amplification equipment is placed or directed outside (stereo speakers, live bands, etc.) in accordance with University noise policy.
2. The required registration forms may be obtained in the Office of the Dean for Student Life, 109 Flowers, and must be completed and returned for approval to the office 72 hours prior to the event. Call 684-6488 for more information.
  3. Alcohol stipulations for registered events.
    - a. The University prohibits the distribution of *any* alcoholic beverages at registered functions held in or adjacent to residence halls.
    - b. The University prohibits the distribution of alcoholic beverages in non-residential facilities with the following exceptions:
      - (1) The Old Trinity Room, Von Canon Hall, Central Campus Multipurpose Room, the Mary Lou Williams Center for Black Culture, and any facility approved by the Dean for Student Life. Alcoholic beverages may be served at these locations, to those of legal age to drink, only during events limited to no more than one guest per attending member. Prior approval to serve alcoholic beverages, including, if desired, the use of common containers, must be obtained from the Offices of the Dean for Student Life and the Assistant Business Manager for Business Auxiliaries. If approval is obtained and alcoholic beverages are served, a nonalcoholic beverage other than water must also be served in the same manner. The quantity of the nonalcoholic beverage must be sufficient to meet the demand for it. Individuals may not bring their own alcoholic beverages to these locations.
      - (2) In addition, the Dean for Student Life has discretion to approve the serving of alcoholic beverages, to those of legal age to drink, at certain events held in other nonresidential locations (e.g., senior class picnic) on a case by case basis. Before giving this approval, the Dean will take into consideration whether attendees of the event are of legal age to drink, whether access to the event

and other functions can be effectively monitored, and whether satisfactory safeguards are in place to comply with North Carolina law governing alcoholic beverages.

- c. Individuals of legal age may bring their own alcoholic or nonalcoholic beverages to registered events held in the residence halls, on the quad, in Card Gym, or in the Intramural Building. Under these circumstances, the individual will be responsible if he or she furnishes alcoholic beverages to a person not of legal age to drink. Further, individuals may not bring more alcoholic beverage than he/she and one guest might reasonably consume over the course of the event.
4. Monitoring of registered events.
    - a. The Dean for Student Life will determine if the sponsoring group will be required to hire Public Safety to perform the monitoring functions *set forth below* for events held in nonresidential buildings. These registered parties are limited to four hours and Public Safety will be required until the facility is cleared of all participants. When Public Safety is not required, the sponsoring group shall be responsible for performing the monitoring function by designating student monitors.
    - b. The necessary monitoring functions include:
      - (1) monitor the size of the crowd,
      - (2) prevent outsiders from attending and screen for uninvited guests,
      - (3) maintain order, prevent damage, and identify persons responsible if damage occurs,
      - (4) stop music at the designated closing time, and
      - (5) facilitate the orderly withdrawal of event participants.

### C. PROVISIONS APPLICABLE TO UNREGISTERED EVENTS

1. Unregistered events will be governed by the following alcohol stipulations:
  - a. All unregistered events sponsored by an undergraduate student group at which alcohol is present must be held in the residence halls, unless prior approval is obtained from the Dean for Student Life for another location.
  - b. All unregistered events sponsored by any other entity must be held in or adjacent to the facility of the sponsor (which may be a faculty member, graduate student group, academic department, etc.) with permission from the dean or department head in charge of the facility, unless prior approval is obtained from the Dean for Student Life for another location.
  - c. At the unregistered events alcohol may be distributed (i.e., served) to members of the sponsoring group and one guest per attending member of legal age to drink.
  - d. If alcoholic beverages are served, a nonalcoholic beverage other than water must also be served in the same manner. The quantity of the nonalcoholic beverage must be sufficient to meet the demand for it.
  - e. If alcoholic beverages are present, the sponsor(s) and/or living group will be responsible if alcoholic beverages are served to a person(s) not of legal age to drink or if alcoholic beverages are served in excessive amounts to any person. If common containers for alcoholic beverages (e.g., beer kegs) are used at the event, the sponsor(s), living group, and/or the purchaser of the container is/are responsible if persons not of legal age to drink are served or serve themselves and is/are responsible if excessive amounts are served to or consumed by any person. The above responsibilities can not be avoided by the sponsor(s), living group, and/or the purchaser by leaving a common container unattended.
  - f. Individuals may bring their own alcoholic or nonalcoholic beverage to unregistered events. Under these circumstances, the individual will be respon-

sible if he or she furnishes alcoholic beverages to a person not of legal age to drink. Further, individuals may not bring more alcoholic beverages than he/she and one guest might reasonably consume over the course of the event.

2. Monitoring of unregistered events.

a. The sponsor(s) or living group shall be responsible for performing the monitoring functions set forth below for unregistered events by designating student monitors.

b. The necessary monitoring functions include:

- (1) monitor the size of the crowd,
- (2) prevent outsiders from attending and screen for uninvited guests,
- (3) maintain order, prevent damage, and identify persons responsible if damage occurs, and
- (4) ascertain that persons not of legal age to drink are not served and do not consume alcoholic beverages.

## **PARTY PROMOTION**

By choosing to serve beverages containing alcohol as part of a social function, you and your group or organization assumes certain responsibilities beyond direct University regulation.

Test cases involving common law precedents and the dispensation of alcohol beverages are changing the definition of who is liable for a drinker's actions to include the general category of "social hosts." A social host may be a fraternity, a residence hall organization, a private citizen, or any combination of the preceding.

For example, serving alcohol to a minor who subsequently breaks his leg could render an individual or group liable for the minor's medical bills. Serving an individual who is "already" or "obviously" drunk and who subsequently has an automobile accident could render an individual or group liable for the injury or death of third party victims of the accident, or any property damage resulting from the accidents.

In general, CREATING OR PROMOTING ANY SET OF CIRCUMSTANCES WHICH ENCOURAGE ANY OF YOUR GUESTS TO CONSUME ALCOHOL TO THE POINT OF INTOXICATION CAN HAVE FAR REACHING NEGATIVE CONSEQUENCES OF A MOST SEVERE NATURE.

Legal proof of negligence in the dispensation of alcohol usually involves the consideration of wide variety of factors, including the manner in which hosts promote social functions where alcohol is served.

In addition to the responsible monitoring of the social event itself, IT IS IMPERATIVE THAT YOU AND YOUR GROUP OR ORGANIZATION DO NOT PROMOTE YOUR EVENT IN SUCH A MANNER THAT A POTENTIAL GUEST MIGHT REASONABLY BELIEVE YOUR SOCIAL EVENT IS AN INVITATION TO BECOME INTOXICATED.

SPECIFICALLY: FLYERS, BANNERS, AND SIGNS WHICH ADVERTISE SOCIAL EVENTS WHERE ALCOHOL WILL BE SERVED MUST NOT OVERTLY OR COVERTLY STATE OR IMPLY AN INVITATION TO PARTICIPATE IN EXCESSIVE DRINKING.

## **CAMPUS BANNER POLICY**

Requests for hanging banners on University buildings must be approved by the Physical Plant Office. If approved, a banner may be hung for a period of not more than three days. The banner must be removed by the sponsoring organization within 24 hours of the event that it advertises. In the event that there is no date for the banner, then a three-day maximum will be established for its display. If the group fails to remove the banner within the designated time, the University will remove it at a cost to the responsible organization or individuals. Where no sponsoring organization or individual may be identified, banners will be taken down immediately.

## CONFERENCES AND CONVENTIONS

Invitations to individuals or to organizations outside the University to hold conferences or conventions on campus must be discussed with and approved by the Dean for Student Life well in advance of the extension of the invitation by the prospective host or host group at Duke. It is the established policy of the University not to use its dormitory facilities for the housing of convention guests during the academic year. The University does, however, reserve the right to use dormitory rooms for special guests during announced vacations.

## DISCRIMINATION, APPEAL PROCEDURE FOR STUDENTS EMPLOYMENT

Complaints from students of discrimination regarding hiring practices should be filed in writing with the Office of Placement Services, 214 Flowers Building. A staff representative of the Office of Placement Services shall notify the University Equal Opportunity Officer in writing of the complaint within ten (10) working days. The Equal Opportunity Officer will investigate the complaint, notify the Office of Student Affairs and the respective college or school of the student, and attempt to reconcile the parties. Should the complainant feel that the complaint of discrimination has not been remedied after receiving a written evaluation from the Equal Opportunity Officer, appeal may be made to the respective dean of the student's college or school.

## DOGS ON CAMPUS

All dogs found running loose on campus or tied to an obstacle with the dog unattended by the owner will be removed from the campus to the Durham County Dog Pound by a county official. Upon claiming the dog the owner will be required to furnish identification. The Department of Public Safety will refer the names of such students to the appropriate dean; employees will be referred to their department head. Other persons who indicate an unwillingness to cooperate with Duke University regulations in this matter will be given trespass warnings.

## DRUGS

Duke University prohibits its members to possess, use, or distribute illegal drugs, including opiates, barbiturates, amphetamines, marijuana, and hallucinogens, except for legally authorized possession and distribution of drugs of the classes specified. In addition, the presence and use of many of these drugs within the University community are contrary to the intellectual and educational purposes for which the University exists.

The University recognizes that ignorance or innocence concerning such drugs threatens the safety of members of its community. It therefore seeks to provide as much information as it can concerning the consequences of harmful drugs. The University recognizes also that the illicit use of drugs may reflect emotional problems and is prepared to assist its members involved in their use through medical and psychiatric counseling. Nevertheless, the University considers a violation of the drug prohibition a serious matter and reserves the right to take action appropriate to the circumstances of each case.

Action taken by the University in all cases of drug violation will be guided by a concern both for the emotional and physical welfare of the person involved and for the maintenance of a suitable educational environment for all members of the University. See Appendix F for rules governing drug violations.

## FIRE EQUIPMENT

In an effort to provide adequate protection, fire extinguishers are located in all residence halls. Since the installation of this equipment, numerous fires have been quickly controlled, avoiding injury or loss of life. The potential impact of having fire extinguishers



vandalized or stolen is clear; yet, each year individuals continue to disregard the safety and rights of others by destroying and tampering with this equipment.

Damage and/or theft of fire equipment is punishable under North Carolina General Statute 14-260 which carries a maximum penalty of six months imprisonment and/or \$500 fine. In addition, students who have allegedly misused or vandalized fire equipment may have their housing licenses revoked and/or be referred to the Undergraduate Judicial Board. Judgments rendered by this board may result in the loss of housing privileges and/or other punishment.

It is University policy that dormitories be billed for theft and/or vandalism of fire extinguishers within the residence halls.

To further assure life safety, fire alarm systems are located in each residence hall at convenient locations to alert the occupants in case of fire. Turning in false alarms may result in unnecessary deployment of fire vehicles and the penalties for turning in false alarms or tampering with the alarm system are the same as those listed above. (See section on "Revocation of the Housing License," page 27.)

## **FIREWORKS, OTHER EXPLOSIVES, AND WEAPONS**

The General Statutes of North Carolina strictly prohibit the possession of firearms, explosives, starter pistols, and weapons on any university campus. Students are not permitted to bring to the campus or store on the campus any weapon, including any gun, rifle, pistol, explosive, switch-blade, knife, or dagger. Students may not possess fireworks of any kind. If found to be in violation of this policy, students may have their housing licenses revoked and/or be referred to the Undergraduate Judicial Board. (See section on "Revocation of the Housing License," page 27.)

## **HAZING**

Duke University considers hazing to be a serious infraction of University regulations. Hazing Policy: Any action taken or situation created, intentionally, whether on or off fraternity, sorority, or University premises, to include physical discomfort, embarrassment, harassment, or ridicule. Such activities and situations include but are not limited to paddling in any form; creation of excessive fatigue; physical and psychological shocks; road trips, or any other such activities carried on, in or outside the confines of the University; wearing publicly apparel which is conspicuous and not normally in good taste; engaging in public stunts and buffoonery, morally degrading or humiliating games and activities which are not consistent with fraternal law, ritual, or policy or the regulations and policies of Duke University. (Modified from: Statement on Hazing, Fraternity Executive Association). Students should also be aware that hazing is a misdemeanor under North Carolina state law and is punishable by up to a \$500 fine and/or six months imprisonment. The action of even one member of the group may constitute hazing by the fraternity or sorority. Any fraternity or sorority convicted of hazing may be warned, placed on probation, or the charter of the group suspended for a period of time or permanently. Individuals responsible for hazing are also liable for action by the Undergraduate Judicial Board.

## **IDENTIFICATION CARDS**

Undergraduate students are issued identification cards (the Duke Card) which they should carry at all times. The cards are the means of identification for library privileges, student health services, athletic events, and other University functions or services open to them as University students. These cards also serve to purchase food on a selected meal plan or other food and nonfood items on the flexible spending account. Students will be expected to present their cards upon request to any University official or employee.

The cards are not transferable, and fraudulent use may result in loss of student privileges or suspension. A student should report the loss of this card immediately to the Office of the Registrar, 103 Allen Building. The cost of a new Duke Card is \$5.

## LIBRARY MATERIALS SECURITY

Library materials are electronically protected from theft by automatic locking of the exit gates when items have not been properly charged. An alarm sounds simultaneously, drawing attention to the situation and requiring the person to return to the circulation desk nearby to ascertain the problem.

Anyone who refuses to permit his or her books to be examined may be denied further use of the library. Student offenders will be reported to the appropriate dean of the University, who is authorized to refer such offenders to judicial boards or to take independent disciplinary action, including penalties, up to and including suspension, appropriate to the seriousness of the offence.

## LIBRARY POLICY CONCERNING FOOD, DRINK, AND TOBACCO IN PUBLIC AREAS

This policy is meant to decrease:

- a. Possible damage to books and furnishings
- b. Attraction of vermin to the building and the collections
- c. Deterioration of a pleasant, studious environment in the reference area and general stacks
- d. Cost of housekeeping within this extensive building

The policy applies in public areas of the library to all persons, including University staff, faculty, students, and all others working in or using the library. Public areas include departmental quarters, elevators, hallways, stairwells, carrels, and all book stacks. Also, this policy applies while walking through public areas of the library.

1. No food or drink is to be consumed except in designated areas. These are: the study halls, the faculty/staff lounges, front lobby, Rooms 223A, 226, and the Breedlove Room.
2. No smoking or other tobacco use is allowed except in designated areas. These are: most restrooms (expressly prohibited in some); front lobby, the large faculty/staff lounge, and, on occasion, Rooms 223A, 226, and the Breedlove Room.
3. Food, drink, and tobacco will be subject to confiscation if used in undesignated areas.

## MEDICAL CENTER STUDENT TRAFFIC

Duke Hospital and clinics provide medical service and support to thousands of patients and their families. Student traffic brings congestion, noise, and additional building maintenance that are incompatible with patient care.

Students are prohibited from using Duke Hospital South as a thoroughfare. Students must walk around Duke Hospital South via Trent Drive and Flowers Drive.

If a student needs access to Duke Hospital South for purposes such as visiting the student infirmary, going to work, the bank, or the pharmacy, a pass must be obtained from either the security guard at the Davison entrance or the attendant at the information desk in the main lobby.

Special Note:

Female students *only*, walking alone or in pairs, may use the first floor of Duke Hospital South as a thoroughfare from dusk until 12 midnight.

## NOISE (DISORDERLY AND DESTRUCTIVE BEHAVIOR)

This policy has been developed after consultation with the Associated Students of Duke University, the Interfraternity Council, the Upperclass House Association, the Residential Judicial Board and the Residential Policy Committee. This policy is based on the belief that all persons residing in the community have a responsibility to respect the rights, health, security, and safety of other community members and that persons who

repeatedly fail to respect others should no longer be afforded the privilege of residing in University housing.

Disorderly and/or destructive behavior by students is prohibited.

1. Any student accused of destroying personal or University property is liable for judicial action before the appropriate judicial body.
2. Quiet hours will be in effect throughout the campus except during the hours of 5:00 P.M. to 1:00 A.M. on Friday, from 1:00 P.M. to 1:00 A.M. on Saturday, and from 1:00 P.M. to 6:00 P.M. on Sunday. Quiet hours are in effect twenty-four hours a day at Central Campus Apartments.
  - a. Violations of quiet hours will be adjudicated by the appropriate judicial body.
  - b. Even during the hours listed above, students are expected to continue to respect the rights of others.
  - c. During quiet hours, students who are disturbed should attempt to resolve the situation by contacting the other parties involved; or, if needed, seek the assistance of house officers or Resident Advisers. In some areas of campus, an internal system for dealing with disturbances has been established by house officers (including distributing lists of house officers and RAs to contact) which has worked quite well. All quadrangle areas are encouraged to implement such a procedure. During the hours listed above, the Public Safety Officers and student monitors will continue to respond to complaints and will notify those creating a disturbance that a complaint has been made. However, complaints made during the time periods noted above when quiet hours are not in effect will not be considered as violations of the policy unless extenuating circumstances are present such as noise interfering with classes which are in progress. If necessary, complaints may be registered by calling the Public Safety Office at 684-2444. Complainants should provide their name and location when calling the Public Safety Office. Such information will remain confidential. In cases going before a judicial body, the Public Safety Incident Report will serve as the plaintiff. The chairman of the judicial body (or designee) may contact the complainant to verify the incident and request additional information. If an anonymous complaint is made, the Office of Student Life will send a letter notifying the group or individuals that a complaint was made. If a group or individual receives two or more actionable noise complaints (where the complainants have been identified) and is found guilty by the Judicial Board (or designate), then all additional anonymous complaints will be made known to the Board to assist in determining the sanction.
  - d. The Public Safety Officer or House Officer will forward to the Dean for Student Life a report of all noise complaints. In those cases where students have cooperated when contacted by the Public Safety Office, a letter will be forwarded to the students concerned or to the President of the living group informing them of the complaint. The students will also be informed that any further complaints during the remainder of the academic year will be forwarded to the appropriate judicial body for adjudication.
  - e. Should the Public Safety report indicate that the students had been warned and that the noises persisted and necessitated a return to the same student room or house in the same evening, then the report will be sent directly to the appropriate judicial body for adjudication.
  - f. Residential and quad parties are permitted provided that such parties have been approved under procedures as implemented through the Office of the Dean for Student Life.
  - g. Under no circumstances during quiet hours may stereo speakers be placed or pointed outside. During nonquiet hours, an individual or living group may only place or point speakers outside for a function that has been approved by the Dean for Student Life.

It should be noted that residents are responsible for actions of their guests and that living groups as a whole may be held responsible for violations of this policy. The judicial body when adjudicating a violation of the above policy, will follow its established procedures and may impose the established sanctions including fines and/or eviction from the residence halls.

### **PAINTING POLICY**

There has been a long-standing tradition of allowing student organizations and individuals to paint the East Campus bridge. Students are reminded that this activity may not extend beyond the bridge to include the painting of roads, sidewalks, telephone poles, lamp posts, trees, or any other University or municipal areas. Any groups or individuals identified as being responsible for painting anything other than the bridge will be charged for clean up and may also be subject to judicial action.

### **PARTIES IN RESIDENTIAL AREAS OUTSIDE OF RESIDENCE HALLS AND "BEER BLASTS"**

See "Alcoholic Beverages" in this bulletin.

### **PICKETS, PROTESTS, AND DEMONSTRATIONS**

See Appendix E.

### **POLICY ON USE OF SEGREGATED FACILITIES**

It is University practice not to discriminate in any way on the basis of race, creed or national origin. This statement covers official activities sponsored, financed and controlled by University personnel and campus organizations, whether these activities are held on or off campus. If they are held off campus, they must not utilize facilities where discrimination is practiced. Naturally the University will not attempt to dictate to individual students, faculty members, or private groups how they should conduct their personal affairs outside the University.

The above policy applies to all social functions sponsored by undergraduate residence hall campus organizations. The failure of student groups to comply with this policy may result in suspension of their social privileges. Repeated offenses by campus organizations could result in the revocation of their charters.

### **POLICY FOR REGISTERING "THEME" PARTIES**

Any theme party held in the residence halls which involves the introduction of "foreign materials" (such as hay, bamboo, paper draping, etc.) as party decorations must be approved by the Safety Office of the Duke Public Safety Department. Because such materials may prove to be fire hazards, it will be necessary to have clearance from the Director of the Safety Office.

### **ROOF AND LEDGE AREAS, UNAUTHORIZED ACCESS**

The only authorized persons permitted on the roof and ledges of University buildings are maintenance personnel and certain other University officials. Students found in these areas will be referred for judicial action and/or may be subject to the immediate revocation of their housing license.

### **POLICY CONCERNING FILMS AT DUKE**

Films-open to the public-are shown every evening of the academic year. During the two summer sessions there are at least two evenings per week of film showings.

## Presenters

### A. Film Committee Presenters

The two major film committees responsible for carefully chosen film series are (1) the D.U.U. Freewater Film Series, presenting 16mm film (in multiple showings of two or three presentations each evening) on Tuesday, Thursday, and Friday in the Film Theater, Bryan University Center, and on certain occasions children's films on Saturday morning; and (2) Quadrangle Pictures (Quad Flicks)-the oldest film program on campus presenting 16mm films on each Saturday and Sunday (two showings each evening) in the Film Theater.

Participation in these two committees is open to students, faculty, and staff. For Freewater Films, contact the program adviser or the chairperson of the D.U. Union, 101 Bryan University Center, ext. 2911. For Quadrangle Pictures, contact the Director of Cultural Affairs, 109 Page, ext. 5578. Both groups solicit the opinions of the student body and faculty in the selections of films and are most happy to cooperate whenever possible in bringing films requested by departments and organizations.

During the two summer sessions, Freewater and Quadrangle Pictures show films in the Film Theater, Bryan University Center.

### B. General Campus Presenters

Monday and Wednesday evenings may be utilized by departmental groups, residential units, fraternities and sororities, and by organizations chartered by ASDU to have public showings of 16mm films in the Film Theater. If admission is charged, the sponsoring group must use the Film Theater of the Bryan University Center, for which appropriate tax payment has been made to the city. The presenters should be aware of and should adhere to the following regulations:

1. All film presentations must be sponsored by the above organizations with funds from admission sales going to the respective organizations.
2. No film showing may be presented for an individual's self-aggrandizement.
3. Permission is withheld from film presenters for the showing of x-rated films until justification for their presentation is reviewed. Other films which, regardless of rating, are shown or have been found to encourage disruptive behavior may be restricted.
4. All film presenters must employ the services of a house manager and a projectionist, both provided by the Building Manager, Bryan University Center (office adjacent to the bank machines on the intermediate level, 684-2656). These employees will be present throughout the entire presentation. An estimate of cost will be available from the building manager.
5. All public announcements for the film showings (such as flyers, posters, calendar, and *Chronicle* announcements) must be made to display clearly the sponsoring group's official name. Advertising for all film presentations is restricted to the campus media.

**Film Sources.** A complete up-to-date collection of film catalogues may be found in the Office of Cultural Affairs, 109 Page Building, and the D.U. Union Office, 101 Bryan University Center. The reference room of Perkins Library also has extensive files of film catalogues and other relevant reference material. The Durham County Library (on north Roxboro Street) also has projectors (movie and slide) for rent. You must have a library card to rent these. Catalogues may also be ordered directly from film companies.

**Locations for Film Showings.** The auditorium on the Duke campus authorized for film showings for which an admission is charged is the Film Theater of the Bryan University Center. This hall is covered by the payment of a privilege license tax paid by Duke University to the city of Durham and to the state of North Carolina. To charge admission to films shown in other areas is in violation of state law and brings into question the legal position of the University.

**Free Films.** If no admission is charged and no donation is received, films may be publicly shown in any appropriate room on campus, but their scheduling must adhere to other rules applicable to general campus film presenters to prevent conflicts.

### Possible Film Restrictions

- A. X-Rated Films Policy-Permission is withheld from film presenters for the showing of x-rated films until justification for their presentation is made through appeal.
1. An appeal by the Freewater Film Society and by other organizations under the jurisdiction of the University Union will be reviewed by the board of the University Union whose decision will be communicated to the Vice-President for Student Affairs for final review.
  2. An appeal by other chartered organizations will be reviewed by the Vice-President of Student Affairs directly. All reviews and subsequent decisions will take into account, among other considerations, the objectives to be served by exhibiting the film, its educational value, and the extent to which the request can be supported by a social or aesthetic justification. When, in response to an appeal, permission is granted to present an x-rated film, the following procedures will be required: the Vice-President for Student Affairs will (a) decide whether or not the film in question shall be listed in the *Duke Dialogue*, (b) designate what kind of identification may be required of members of the Duke University community and/or their guests, (c) decide whether or not a representative of the Public Safety Office may be required for the purposes of assisting the sponsoring group, at the latter's expense. In addition, those attending must show proof of age that complies with North Carolina state law.
- B. Other Film Restrictions-The decision to withhold the scheduling of films which, regardless of rating, are shown or have been found to encourage disruptive behavior may be made by:
1. The University Union board for films proposed by the Freewater Film Society and by other organizations under its jurisdiction.
  2. The Film Board of the Office of Cultural Affairs for films proposed by chartered organizations. The decision by either of these boards to withhold the scheduling of a film may be appealed to the Vice-President for Student Affairs. When in response to an appeal, a favorable decision is reached, the same procedures listed in (a) through (c) will be required.

### Film Scheduling Procedures and Regulations.

1. A general meeting of film presenters will be announced by the scheduling office prior to final examinations for film presentations to be scheduled during the next semester. At this meeting a lottery for the selection of dates will be held.
2. After the general meeting of film presenters films may be scheduled between the hours of 9:00 A.M. and 4:00 P.M. on weekdays in 109 Page Building.
3. Film presenters may schedule only one film per semester unless other dates are available. In this event an additional film may be scheduled after October 1 for the fall semester and January 31 for the spring semester. Both must be approved by the Director of the Office of Cultural Affairs or designate.
4. No film may be shown that is already scheduled for the academic year until following the originally scheduled showing. If groups decide to show a film that is already scheduled, they may not publicly announce in any way their choice of film presentation until the initial group has shown the film.
5. No public film showing (those announced to the general University community) may be scheduled at the same time on the same day as another film which has already been scheduled, unless no conflict is perceived by the group having completed their scheduling paperwork first.

6. The Manager of the Bryan University Center has reserved the Film Theater for use on Monday and Wednesday evenings for film presentations. The scheduling procedure starts at the Calendar Office, 109 Page Building. Pick up scheduling application (triplicate form in white, yellow, pink) and complete. Check the University *Calendar* for clear date to avoid conflicts. Select film and set starting times for multiple showings. All films must end by 12:30 A.M. to clear theater for closing before 1:00 A.M. Get signature of Director of Office of Cultural Affairs or designate to confirm date and film choice.
7. All chartered organizations' presenters should then proceed to the Office of Student Activities, located behind the Information Desk in the Bryan University Center. Pick up a review of bookkeeping procedures, get the account code of your organization and signature of the Director of the Office of Student Activities or designate. The Director of the Office of Student Activities or designate will not sign the scheduling application form until the following arrangements have been made: (a) the applicant organization's account has been reviewed to determine the ability of the organization to cover the film rental, film transportation, and both security and technical costs of the film presentation and (b) an IR form is prepared for the Building Manager, Bryan University Center, to cover costs for the employment of a house manager and a projectionist. Information which will be needed at this time includes: (1) rating of film (2) running time of film (3) cost of film and cost of film transportation.
8. Return to the Calendar Office no later than three weeks before the date of film presentation. Leave the original white copy at the Calendar Office, the yellow copy with the Building Manager of the Bryan University Center, and keep the pink copy for the film presentation as official authorization. (Note: scheduling will be forfeited if all procedures are not completed within the three-week deadline.)
 

NB: For showing films in an area other than the Film Theater for which no admission is charged and no donation is taken, arrangements must be made with the Technical Services Office, 03 Page Building, for use of projectors and a projectionist. For such showings, take an IR form to this office. All film showings must be cleared with the Office of Cultural Affairs to avoid conflicts.
9. Commons areas in residence halls and other such University facilities may not be used for the showing of "stag" films. In addition, such areas may not be used by individuals or groups for performances by strippers.

## SAFETY

No institution can guarantee the safety of all students at all times. It is therefore recommended that students exercise caution at times and places known to be hazardous. It is recommended that students not study in a classroom alone or walk alone in unlighted portions of the campus or between campuses after dark. The Public Safety Office (684-2444) may be called to request escort service.

1. Do not walk, jog, or bike alone outside of well-populated areas.
2. Keep your room and apartment door locked *at all times* whether or not you are present.
3. After the closing hours of women's residence halls, all external doors should be kept locked or closed.
4. Immediately report to the Public Safety Office, 911, or 684-2444, any incident taking place that threatens safety or appears suspicious.

## **SOLICITATION POLICY**

Commercial selling or soliciting in the residence halls is prohibited whether by residents or nonresidents.

The Bryan Center environs may be used for the purpose of sales, distribution, or events involving the use of sound amplification equipment. Any such activity must be sponsored by a recognized campus organization and requires the prior approval of the Office of Student Activities.

## **STUDENT RECORDS**

In accordance with the Family Education Rights and Privacy Act of 1974, Duke University generally permits students to inspect their educational records and protects the information in such records from disclosure to third parties without the students' consent. The University's policy on the release of students' records is on file in the Office of the University Registrar.

Address and telephone information provided to the Office of the Registrar may be released without student consent unless written notification is provided to the office by the end of the second week of classes.

## **TRAFFIC REGULATIONS**

Motor vehicles must be registered annually at the beginning of the fall semester or, if a vehicle is acquired later, within five days after bringing it to the or, if a vehicle is acquired later, campus. All registration takes place in the Traffic Office, 2010 Campus Drive, and at other places and times as announced. Students in the School of Medicine and other Medical Center programs, residents of Hanes House, Hanes Annex, and Trent Hall, will all register through the Medical Center Traffic Office at places as announced. There is an annual parking fee, determined by location and status. Students must present their student identification card.

Upon registration of a motor vehicle, students will receive a copy of the University motor vehicle regulations. Operation of a motor vehicle on the campus is contingent upon compliance with these regulations.

All vehicles parked illegally, including bicycles, motor bikes, motor scooters, and motorcycles parked within the residential hall buildings, may be subject to towing.

## **VENDING AND ELECTRONIC GAMES (PIN-BALL, FOOS-BALL, ETC.) EQUIPMENT**

Only University-owned vending and electric game equipment is permitted in the residence halls. Living groups interested in renting this type of equipment should contact Duke University Vending Services, a service component of the Duke University Stores. Such equipment rented from sources outside the University is prohibited.

## **VIDEO CASSETTE RECORDERS**

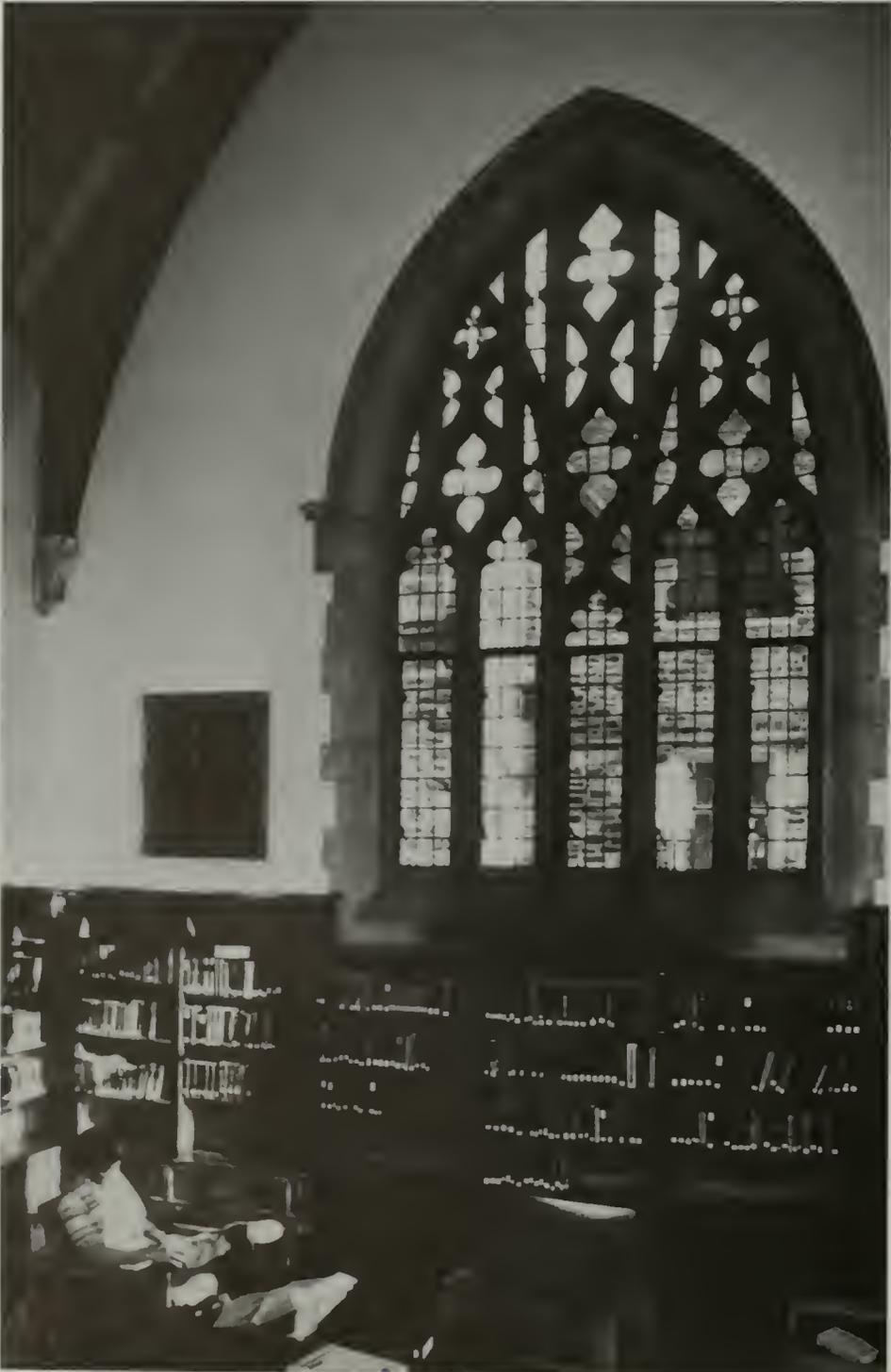
Students are advised that Federal copyright law restricts the use of video cassette recorders to private showings and prohibits their public performance.



## POLICY ON NONDISCRIMINATION

Duke University does not discriminate on the basis of race, color, national and ethnic origin, handicap, sexual orientation or preference, sex, or age in the administration of educational policies, admission policies, financial aid, employment, or any other University program or activity. It admits qualified students to all the rights, privileges, programs, and activities generally accorded or made available to students. For further information, call Dolores L. Burke, University Equal Opportunity (919) 684-8111. Duke University has adopted procedures for investigation and remedy of complaints involving discrimination. See the chapter "Campus Life and Activities."

*Academic Honesty*



## Use and Acknowledgement of Sources

### THE IMPORTANCE OF ACADEMIC INTEGRITY

Independent learning and the acceptance of individual responsibility are values which are highly regarded among undergraduates at Duke University. It is recognized that personal integrity, and the achievement of genuine scholarship in a community of mutual respect, depend upon the commitments of students as well as faculty to these ideals.

Independent learning sometimes involves one in an investigation of novel data or ideas, and in the formulation of original hypotheses. Yet for most college students, independent learning means the patient search for information, the sifting of criticism which others have published, and the use of this material in the statement and defense of their own conceptions and judgements. From the reading of books, periodicals, and other printed materials, research papers and original compositions are written in partial fulfillment of course requirements. It is therefore of importance that all students understand what is expected of them in using and acknowledging such source materials.

Some entering students may have given little, if any, thought to the issue of academic honesty, for they may have been permitted to copy word for word encyclopedias and other reference works without the use of quotation marks. More perhaps have become accustomed to paraphrasing other peoples' ideas without giving credit to whom credit is due. Some students, who have recognized such common forms of plagiarism and avoided them may have fallen into habits of writing which are nonetheless dishonest. A chief contributing factor is a careless manner of notetaking, in which a student's own comments become hopelessly entangled with the words and phrases copied from sources. When notes of this kind are used as a basis for a report, one usually is either unable to identify clearly the ideas which are not his own, or else, since the sources are not open before him at the time of writing, he can easily suppose that no credit need be given. In this way essentially honest students can and do unwittingly undermine their own academic integrity, and that of the community of scholars to which they belong.

It is sometimes protested that educators are too scrupulous in this matter, that there are so many borderline cases as to make the maintenance of standards impracticable. Are not books written to be used by anyone who chooses to rely on them? Do not researchers publish their ideas for others to share? How is one able to distinguish clearly between privileged information and public or common knowledge? Yet thoughtful consideration will

lead one to see why honesty is the *sine qua non* of scholarship, the essential binding principle of any sound academic community and why scrupulosity in this matter is necessary.

A scholar's contributions are his ideas and insights; these are his actual achievements. While in college he receives recognition for his ideas and skills in the form of grades and credit toward graduation and, in some cases, scholarship awards. After graduation, he may be offered fellowships for graduate study or job opportunities on the basis of these accomplishments. Such things are posited on the faith that a scholar's work and achievements are his own, and that his record indicates accurately the extent to which he is able to organize in his own way that knowledge which is important to the work he is fitted to do. Unless the evaluation of each student's accomplishment is based on his real abilities, on work actually done and rewards gained, his college record becomes a fraudulent document, and an unfair advantage is gained over other students whose scholarship is honestly represented. Among the many factors essential to the good life of a quality college, commitment to the value of academic integrity is crucial. Students assume individual responsibility in this matter; their failure to do so, for whatever cause, is especially lamentable.

The following is published to provide basic information on the subject. First, there is reproduced a definition of plagiarism which, by furnishing examples, illustrates the improper use of source material. The appendix is a statement written by the chairman of the judicial board of the undergraduate colleges.

## A DEFINITION OF PLAGIARISM

The academic counterpart of the bank embezzler and of the manufacturer who mislabels his product is the plagiarist, the student or scholar who leads his reader to believe that what he is reading is the original work of the writer when it is not. If it could be assumed that the distinction between plagiarism and honest use of sources is perfectly clear in everyone's mind, there would be no need for the explanation that follows: merely the warning with which this definition concludes would be enough. But it is apparent that sometimes men of good will draw the suspicion of guilt upon themselves (and, indeed, are guilty) simply because they are not aware of the illegitimacy of certain kinds of "borrowing" and of the procedures for correct identification of materials other than those gained through independent research and reflection.

The spectrum is a wide one. At one end there is a word-for-word copying of another's writing without enclosing the copied passage in quotation marks and identifying it in a footnote, *both* of which are necessary. (This includes, of course, the copying of all or any part of another student's paper.) It hardly seems possible that anyone of college age or more could do that without clear intent to deceive. At the other end there is the almost casual slipping in of a particularly apt term which one has come across in reading and which so admirably expresses one's opinion that one is tempted to make it personal property. Between these poles there are degrees and degrees, but they may be roughly placed in two groups. Close to outright and blatant deceit-but more the result, perhaps, of laziness than of bad intent-is the patching together of random jottings made in the course of reading, generally without careful identification of their sources, then woven into the text, the cement to hold the pieces together. Indicative of more effort and for that reason, somewhat closer to honesty, though still dishonest, is the paraphrase, an abbreviated (and often skillfully prepared) restatement of someone else's analysis or conclusion, without acknowledgement that another person's text has been the basis for the recapitulation.

The examples given below should make clear the dishonest and the proper use of source material. If instances occur which these examples do not seem to cover, conscience will in all likelihood be prepared to supply advice.

## THE SOURCE

The importance of the Second Treatise of Government printed in this volume is such that without it we should miss some of the familiar features of our own government. It is safe to assert that the much criticized branch known as the Supreme Court obtained its being as the result of Locke's insistence upon the separation of powers, and

that the combination of many powers in the hands of the executive under the New Deal has still to encounter opposition because it is contrary to the principles enunciated therein, the effect of which is not spent, though the relationship may not be consciously traced. Again we see the crystallizing force of Locke's writing. It renders explicit and adapts to the British politics of his day the trend and aim of writers from Languet and Bodin through Hooker and Grotius, to say nothing of the distant ancients, Aristotle and the Stoic school of natural law. It sums up magisterially the arguments used through the ages to attack authority vested in a single individual, but it does so from the particular point of view engendered by the Revolution of 1688 and is in harmony with the British scene and mental climate of the growing bourgeoisie of that age. Montesquieu and Rousseau, the framers of our own Declaration of Independence, and the statesmen (or should we say merchants and speculators?) who drew up the Constitution have re-echoed its claims for human liberty, for the separation of powers, for the sanctity of private property. In the hands of these it has been the quarry of liberal doctrines; and that it has served the Socialist theory of property based on labor is final proof of its breadth of view.

CHARLES L. SHERMAN,  
"Introduction" to John Locke,  
*Treatise of Civil Government and A Letter  
Concerning Toleration.*

## 1. WORD-FOR-WORD PLAGIARIZING

It is not hard to see the importance of the *Second Treatise of Government* to our own democracy. Without it we should miss some of the most familiar features of our own government. It is safe to assert that the much criticized branch known as the Supreme Court obtained its being as a result of Locke's insistence upon the separation of powers; and that the combination of many powers in the hands of the executive under the New Deal has still to encounter opposition because it is contrary to the principles enunciated therein, the effect of which is not spent, though the relationship may not be consciously traced. The framers of our own Declaration of Independence and the statesmen who drew up the Constitution have re-echoed its claims for human liberty, for the separation of powers, for the sanctity of private property. All these are marks of the influence of Locke's *Second Treatise* on our own way of life.

In this example, after composing half of a first sentence, the writer copies exactly what is in the original text, leaving out the center section of the paragraph and omitting the names of Montesquieu and Rousseau where he takes up the text again. The last sentence is also the writer's own.

If the writer had enclosed all the copied text in quotation marks and had identified the source in a footnote, he would not have been liable to the charge of plagiarism; a reader might justifiably have felt, however, that the writer's personal contribution to the discussion was not very significant.

## 2. THE MOSAIC

The crystallizing force of Locke's writing may be seen in the effect his *Second Treatise of Government* had in shaping some of the familiar features of our own government. That much criticized branch known as the Supreme Court and the combination of many powers in the hands of the executive under the New Deal are modern examples. But even the foundations of our state—the Declaration of Independence and the Constitution—have re-echoed its claims for human liberty, for the separation of powers, for the sanctity of private property. True, the influence of others is also marked in our Constitution—from the trend and aim of writers like Languet and Bodin, Hooker and Grotius, to say nothing of Aristotle and the Stoic school of natural law; but the fundamental influence is Locke's *Treatise*, the very quarry of liberal doctrines.

Note how the following phrases have been lifted out of the original text and moved into new patterns:

crystallizing force of Locke's writing  
some of the familiar features of our own government  
much criticized branch known as the Supreme Court  
combination of many powers in the hands of the executive under the New Deal  
have re-echoed its claims for human liberty . . . property  
from the trend and aim . . . Grotius  
to say nothing of Aristotle and . . . natural law  
quarry of liberal doctrines

As in the first example, there is really no way of legitimizing such a procedure. To put every stolen phrase within quotation marks would produce an almost unreadable, and quite worthless, text.

### 3. THE PARAPHRASE

*Paraphrase:* Many fundamental aspects of our own government are

*Original:* Many familiar features of our own government are apparent in the *Second Treatise of Government*. One can safely assert that the oft-censured Supreme Court really owes its existence to the Lockean demand that powers in government be kept separate; equally one can say that the allocation of varied powers and that the combination of many powers in the New Deal has still to encounter opposition because it is contrary to the principles enunciated therein . . . . Once more it is possible to note the way in which Locke's writing clarified the crystallizing force of Locke's writing. existing opinion.

The foregoing interlinear presentation shows clearly how the writer has simply traveled along with the original text, substituting approximately equivalent terms except where his understanding fails him, as it does with "crystallizing," or where the ambiguity of the original is too great a tax on his ingenuity for him to proceed, as it is with "to encounter opposition . . . consciously traced" in the original.

Such a procedure as the one shown in this example has its uses; for one thing, it is valuable for the student's own understanding of the passage; and it may be valuable for the reader as well. How, then, may it be properly used? The procedure is simple. The writer might begin the second sentence with: "As Sherman notes in the introduction to his edition of the *Treatise*, one can safely say . . ." and conclude the paraphrased passage with a footnote giving the additional identification necessary. Or he might indicate directly the exact nature of what he is doing, in this fashion: "To paraphrase Sherman's comment . . ." and conclude that also with a footnote indicator.

In point of fact, this source does not particularly lend itself to honest paraphrase, with the exception of that one sentence which the paraphraser above copied without change except for abridgment. The purpose of paraphrase should be to simplify or to throw a new and significant light on a text; it requires much skill if it is to be honestly used and should rarely be resorted to by the student except for the purpose, as was suggested above, of his personal enlightenment.

### 4. THE "APT" TERM

The *Second Treatise of Government* is a veritable quarry of liberal doctrines. In it the crystallizing force of Locke's writing is markedly apparent. The cause of human liberty, the principle of separation of powers, and the inviolability of private property—all three major dogmas of American constitutionalism—owe their presence in our Constitution in large part to the remarkable *Treatise* which first appeared around 1685 and was destined to spark within three years, a revolution in the land of its author's birth, and ninety years later, another revolution against that land.

Here the writer has not been able to resist the appropriation of two striking terms—"quarry of liberal doctrines" and "crystallizing force"; a perfectly proper use of the terms would have required only the addition of a phrase: The *Second Treatise of Government* is, to use Sherman's suggestive expression, a "quarry of liberal doctrines." In it the "crystallizing force"—the term again is Sherman's—of Locke's writing is markedly apparent . . .

Other phrases in the text above—"the cause of human liberty," "the principle of the separation of powers," "the inviolability of private property"—are clearly drawn directly from the original source but are so much matters in the public domain, so to speak, that no one could reasonably object to their reuse in this fashion.

Since one of the principal aims of a college education is the development of intellectual honesty, it is obvious that plagiarism is a particularly serious offense, and the punish-

ment for it is commensurately severe. What a penalized student suffers can never really be known by anyone but himself; what the student who plagiarizes and "gets away with it" suffers is less public and probably leaves a mark on him as well as on the institution of which he is a member.

#### **STATEMENT BY THE CHAIRMAN OF THE UNDERGRADUATE JUDICIAL BOARD**

Duke University, as a community of scholars, strongly relies upon the standard of academic integrity. Plagiarism and other forms of academic dishonesty represent a corruption of this integrity and, as such, cannot be tolerated within the community.

The Undergraduate Judicial Board actively affirms the requirement that every undergraduate student at Duke read and understand the "Statement on Academic Honesty." This statement provides a definitive explication of what is required, in terms of academic honesty, of each student in the community. It has been the sad experience of the board that many cases of academic dishonesty are the result of ignorance as to what exactly constitutes this dishonesty. We firmly urge that each student refer to the statement whenever there is any question about matters of academic honesty. This small investment in time almost certainly outweighs the possibility of badly damaging one's academic career through ignorance or carelessness.

Ignorance of what constitutes academic dishonesty is no excuse for actions which violate the integrity of the community. The board must view any offense of academic dishonesty with the utmost gravity and will determine sanctions commensurate with the severity of the violation. In a community which builds on the notion of academic integrity, the threat of academic dishonesty represents an intolerable risk.

*Appendices*





## Appendix A

### DUKE UNIVERSITY LICENSE TO OCCUPY RESIDENCE HALL SPACE

FULL NAME: \_\_\_\_\_

HOME ADDRESS: \_\_\_\_\_  
(social security number)

ACADEMIC YEAR 1989-90 \_\_\_\_\_ or SPRING 1990 \_\_\_\_\_

DUKE UNIVERSITY HEREBY LICENSES THE UNDERSIGNED TO OCCUPY A RESIDENCE HALL SPACE FOR THE ACADEMIC YEAR INDICATED DURING THE PERIODS WHEN RESIDENCE HALLS ARE OFFICIALLY OPEN FOR OCCUPANCY BY LICENSED STUDENTS. THE OFFICIAL OPENING AND CLOSING DATES OF RESIDENCE HALLS AND RECESS PERIODS DURING THE YEAR WHEN RESIDENCE HALLS ARE NOT OPEN FOR OCCUPANCY ARE PUBLISHED BY THE DEPARTMENT OF HOUSING MANAGEMENT. THIS LICENSE AUTOMATICALLY TERMINATES IF THE STUDENT OFFICIALLY WITHDRAWS, GRADUATES, OR CEASES FOR ANY REASON TO BE A FULL-TIME STUDENT.

I have read the accompanying terms under which I may occupy residence hall space, and I understand that my continued occupancy is conditional upon my compliance with these terms and all applicable University regulations. If I violate these terms or regulations, the University may revoke this license and may refuse to license me for any occupancy period subsequent to the one provided in this license. I further understand that the terms of this agreement and University regulations are subject to reasonable changes and that, provided I have been notified of such changes, the University may revoke this license should I violate any term or regulation in effect during my occupancy under this license.

Nothing in this license shall be interpreted as relief from the responsibility to comply with federal, state, and local law, and violation of any applicable law may be reason for revocation of this license.

In consideration of this license, I agree to pay the University according to the schedule of payments for the type of room I occupy as approved by Duke University, a copy of which has been furnished. I understand that, in the event the University revokes this license because I have violated the terms of this agreement or University regulations, I must vacate the room I am occupying immediately and the University shall not refund any portion of the payment made for the semester in progress. In the event I officially with-

draw, graduate, or cease for any reason to be a full-time student, I agree to vacate the residence within forty-eight (48) hours. I understand that I will be charged for housing based on the number of days I have occupied a space and will receive a refund for any amount I have paid for housing beyond the time of my departure. The number of days I have occupied the space will be determined according to the date Housing Management inspects the room and confirms that my space has been vacated.

\_\_\_\_\_  
(for Duke University)      (Date)

\_\_\_\_\_  
(Signature of Student)      (Date)

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### Space Requested and Reserved

**SPACE RESERVED**

\_\_\_\_\_  
(Room Number)

\_\_\_\_\_  
(House)

**ROOM DESCRIPTION:**

Type of Room: Single \_\_\_ Double \_\_\_ Triple \_\_\_ Single as Double\* \_\_\_ Double as Triple\* \_\_\_

### TERMS UNDER WHICH DUKE UNIVERSITY LICENSES OCCUPANCY OF RESIDENCE HALL SPACE

The purpose of these terms is to establish understanding among students who reside in Duke University's residence halls and between these students and the University with regard to use of residential facilities. These terms are an integral part of the license and are enforceable as covenants and conditions of the license. Any violation of the terms could lead to revocation of this license and/or disciplinary action. Occupants are responsible for the actions of their guests.

These terms apply only during periods when the residence halls are officially open for occupancy by licensed students. A student in the residence halls at any other time may be trespassed from the premises.

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\*Undergraduate students assigned to single rooms converted for double occupancy and double rooms for triple occupancy may be moved to normal single or double rooms to improve student living conditions and to ensure better use of facilities. The student will be financially responsible for the announced rate for a normal single or double room as applicable. Vacancies occurring in single rooms used as doubles or in double rooms used as triples will make that (those) remaining occupant(s) financially responsible for the announced rate for a single or double room as applicable for the remainder of the term of the license.

## **I. RESERVATION, ASSIGNMENT, AND ROOM CHANGE PROCEDURES**

- A. The license will not be effective unless accompanied by a signed Food Contract for the same academic year.
- B. Reservations for preregistered upperclass students who have paid residential deposits and the fifty (\$50) prepayment of rent will be made in accordance with procedures announced by the Dean for Residential Life. Every effort will be made to assign students in accordance with their preferences; however, the Dean or designee reserves the right to make or change final room assignments if in his/her judgment such reassignments are necessary.
- C. Exchange or transfer of rooms by students may be made only by the following procedure: (1) approval of room change by the Dean for Residential Life or designee (2) official inspection of vacated room by the Department of Housing Management (3) change of keys in appropriate service office. In all of the above, the student(s) seeking the change is (are) responsible for making appointments and arrangements. Any unofficial room change may lead to revocation of this license and will not relieve the student(s) involved of their obligation to pay occupancy, damages, and other costs for the officially assigned room.
- D. Vacancies existing in rooms will be filled by the Dean for Residential Life or designee.
- E. Undergraduate students assigned to single rooms converted for double occupancy and double rooms converted for triple occupancy may be moved to normal single or double rooms to improve student living conditions and to ensure better use of facilities. The student will be financially responsible for the announced rate for a normal single or double room as applicable for the remainder of the term of the license.
- F. Vacancies occurring in single rooms used as doubles or in double rooms used as triples will make the (those) remaining occupant(s) financially responsible for the announced rate for a single or double room as applicable for the remainder of the term of the license.

## **II. PROCEDURES, MAINTENANCE, STORAGE, AND DAMAGES**

- A. Maintenance will be performed normally on a routine basis; however, corrective, emergency, and preventive maintenance will be assigned as necessary.
- B. The University retains the right to enter the premises without the resident being present to carry out maintenance tasks, to conduct inspections regarding availability of space, and to take care of emergency or any equipment failure which is causing damage or hazard to property or persons. Entry into the room for other reasons will be made during reasonable hours with notice to the assigned occupants.
- C. The Department of Housing Management cleans each room prior to occupancy. Thereafter it is the responsibility of the resident(s) to clean the room. The room is expected to be left in a clean condition by the vacating resident(s). If a room requires extraordinary cleaning after occupancy, the cost will be charged to the resident(s). Housekeeping services will be provided on weekdays during the academic year (excluding holidays) only in common areas of the residence halls. The cost of extraordinary cleaning resulting from a living group's activities will be charged to the living group.
- D. The University is not liable for damage or loss of personal property. Because the University does not provide insurance, occupants are encouraged to provide their own personal property insurance.
- E. The University is not liable for the failure or interruption of utilities (including air-conditioning in those residential facilities in which air conditioning units have been installed) or for damages resulting from failure or interruption of utilities or equipment. Residents are not entitled to any compensation or abatement of rent.

- F. Use of nails, screws, tacks, or adhesives which damage walls, furniture, or fixtures is prohibited. Advice on nondamaging ways of hanging artwork and other items is available from Housing Management.
- G. Buildings, building equipment, and furniture repairs or replacements necessitated by damage beyond normal wear and tear will be billed to the appropriate student(s) or living group in accordance with official procedures published by Housing Management. At the end of each academic year, outstanding living group charges will be divided equally among the group's members and charged to their student ledgers.
- H. The assigned occupant(s) is (are) responsible for reporting to Housing Management defects or damages found in a room within five working days after occupancy. (Forms are provided for the initial inspection by the Department of Housing Management.) The resident(s) of a room will be charged for any damages or modifications found in the room after occupancy unless previously noted on the inspection form.
- I. Each bedroom is equipped with furniture by the Department of Housing Management. The resident(s) of a room will be charged for any furniture missing from that room. Personally owned furniture may be added to the room by a resident provided all residents of that room consent and the furniture is removed by the residents at the end of occupancy. Costs for removing any remaining personal furniture will be charged to the residents.
- J. Students are collectively responsible for care of public areas including furnishings and equipment. Commons furniture owned by Duke University Housing Management may not be removed from its intended location. Anyone doing so may be charged with theft under the judicial code. Commons furniture found in bedrooms may be removed by University personnel at the expense of the occupant(s).
- K. Each resident is required to obtain a room key at the time of his/her occupancy. A deposit for this key will be charged to the student's Bursar's account at the rate published by the Department of Housing Management, such deposit is refundable to the person who was issued the key, only if the key is returned to the appropriate service office within forty-eight (48) hours of vacating the assigned space.
- L. Resident students may place empty trunks, luggage, and specialized packing cartons (e.g., stereo boxes) in storage rooms during the effective period of the license at no charge. The University takes no responsibility for the items stored or their contents. Procedures for storage on a fee basis are available from the Department of Housing Management.
- M. Non-University property left in rooms after the license period terminates will be disposed of at the discretion of Housing Management.

### III. TERMS AFFECTING RIGHTS, ORDER, HEALTH, AND SAFETY

The following terms are designed to protect the health and safety and to provide for the comfort and privacy of all students who are licensed to occupy residence hall space. In addition to the following specific terms, any conduct which reflects a serious disregard for the rights, health, security, and safety of other occupants of the residence halls will be regarded as a violation of the license. Every effort will be made to assign students in accordance with their preferences. However, the Dean reserves the right to make or change final room assignments if in his/her judgment such reassignments are necessary.

- A. Students are entitled to privacy in their assigned rooms as set forth in the University Privacy Policy published in the *Bulletin of Information and Regulations*. Sanitary or safety inspections may be conducted by government officials without notice in accordance with the general statutes of North Carolina and city and

- county ordinances. When the residence halls are officially closed during Christmas recess, inspection of rooms will be made by University officials to ensure that no fire or other hazards exist. Hazardous items will be removed and the student(s) involved will be notified when the buildings are officially opened.
- B. Every occupant of residence halls equipped with a security system is required to obtain a card key. A deposit for this card key will be charged to the resident's Bursar's account at the rate published by the Department of Housing Management, such deposit is refundable if the card key is returned to the appropriate service office within 48 hours after vacating the assigned space. Propping open outside residence hall doors or in any way tampering with the security system of the residence hall is prohibited.
  - C. The unofficial use or possession of residence hall keys, including possession of master keys or keys other than those assigned to the student, is prohibited. Keys and card keys are not transferable; switching keys with other students is prohibited.
  - D. Lost/stolen keys must be reported immediately to the appropriate service office and a replacement key must be obtained. An additional deposit will be charged to the student's Bursar's account. The deposit on the lost/stolen key will be forfeited and the bedroom door lock will be changed if the resident is unable to present the lost/stolen key to the service office within two weeks.
  - E. Except in case of fire, fire fighting equipment and alarms shall not be tampered with and shall remain in place. Residents must comply with all fire drills and fire regulations. Fires must be reported to Public Safety and Housing Management.
  - F. Personally owned air-conditioning equipment and heating is not permitted in residence hall areas. Compliance with any existing University energy conservation policy is required.
  - G. Tampering with electrical wiring, including but not limited to, the installation of direct wired ceiling fans and dimmer switches is prohibited.
  - H. Locks and plumbing are not to be tampered with or changed by occupants.
  - I. Damage caused by electrical appliances which are not owned by Duke University is the responsibility of the resident(s).
  - J. Waterbeds are prohibited.
  - K. In accordance with North Carolina General Statute 14-269.2, no firearms, explosives, fireworks, highly flammable materials, or any articles which may be used as offensive weapons may be in the residence halls or on the campus. This includes knives, slingshots, clubs, pellet guns, rifles, BB guns, and all firearms and items of like kind.
  - L. Animals, including, but not limited to, birds and reptiles, are not allowed in or around the residence halls even for short periods. An extermination, at the resident's expense, will be done if an animal enters the residence halls. Fish are allowed provided they are kept in an aquarium no larger than twenty-five gallons, the container is cleaned regularly, and no illegal species are kept.
  - M. No personal effects may be left in the hallways, stairwells, or common areas of the residence halls; any personal effects so found will be disposed of at the discretion of the Department of Housing Management.
  - N. Selling or soliciting in the residence halls, by residents or outsiders, that is either commercial or unrelated to University objectives or activities is prohibited.
  - O. A room may be occupied only by the student holding a license for that room. This license may not be transferred by the student to another person. Guests are permitted in student's rooms and common areas for reasonable periods of time subject to the consent of each resident of a room and the specified residence hall visitation policies for each residential unit.
  - P. Motor vehicles may not be stored or maintained at any time in any residence hall area. Bicycles may be retained by the owner in his or her assigned bedroom space,

but may not be stored in commons, baths, corridors, entrances, or other residence hall spaces. Motor vehicles and bicycles in unauthorized areas will be removed. Students will be required to pay removal fees in order to recover such vehicles or devices used to secure them. The University assumes no responsibility for damage to such vehicles or devices used to secure them.

- Q. Access to roofs and attic space is forbidden.
- R. Candles or other open flame devices in the residence halls are prohibited unless permission is obtained from Duke University Safety Office upon application in writing and upon presentation of proper justification.
- S. Platforms, partitions, or similar structures may not be erected anywhere in the residence halls by students or living groups without the written approval of the Director of Housing Management or designee. Lofts may be erected only if a loft permit is completed and returned to the appropriate service office.
- T. Cable television on the Duke Network is provided in the commons room of each living group. Connecting televisions in bedrooms to the commons room cable or otherwise tampering with the cable is prohibited.

#### IV. PAYMENTS, RETENTION OF PAYMENTS, AND TERMINATION OF LICENCE

- A. Students pay for their license on a semester basis. Payments are to be made to the Office of the Bursar in accordance with established terms of that office.
- B. A prepayment of fifty (\$50) dollars must be paid in the spring by every resident student desiring to reserve a space in University housing for the following academic year. Payment must be made prior to the deadline published by the Office of Residential Life. This fee will be applied to rent for the fall semester. The rent prepayment is not refunded to any student who cancels his/her housing reservation after the last day of spring semester classes unless the student is involuntarily withdrawn from the University.
- C. A one hundred dollar (\$100) Residential Deposit must be paid by each freshman upon admission to the University. While a student lives in University housing, it is understood and agreed that his/her Residential Deposit shall not be applied to fees. Upon permanently vacating University housing, Duke shall, within ninety (90) days, refund said deposit, less any outstanding fees incurred in accordance with the established University policy. Charges for damages in excess of the Residential Deposit shall be assessed to the student. The Residential Deposit will not be refunded, after residential space is reserved, to new students who fail to matriculate. Currently enrolled students will receive a refund of the Residential Deposit if written cancellation is received by Residential Life by July 1 for the fall semester and by December 1 for the spring semester.
- D. An undergraduate student who has been assigned a room who wishes to cancel his/her assignment must notify the Office of Residential Life in writing. Students who cancel their assignments after the contract has begun will be entitled to a refund of the unused rent. The amount of the unused rent is determined by the date of written notification to the Office of Residential Life or the date of vacating the residence halls, whichever is later. In any case a minimum of \$50 will be retained by the Department of Housing Management.

Prior to the implementation of proposed amendments to the terms set forth above, such proposed amendments shall be submitted to the Residential Policy Committee and ASDU for their consideration and comment.

Residential Life  
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**DUKE UNIVERSITY LICENSE FOR UNDERGRADUATE STUDENTS TO OCCUPY SPACE IN CENTRAL CAMPUS FACILITIES**

NAME: \_\_\_\_\_ SS#: \_\_\_\_\_

HOME ADDRESS: \_\_\_\_\_

ASSIGNED LOCATION: \_\_\_\_\_

PERIOD: from noon \_\_\_\_\_ to noon \_\_\_\_\_

Duke University hereby licenses the undersigned to occupy space in the above indicated location and period, subject to the rules, regulations, and other terms of this licensing agreement and all applicable University regulations. Due to the economics of operating these units, this license will not be revoked to permit students to move to other University housing facilities or to move off campus. *This license automatically terminates if the student officially withdraws, graduates, or ceases for any reason to be a full-time student.*

I have read the rules, regulations, and other terms of this agreement, a copy of which has been furnished, under which I may occupy space in University housing and I understand that my continued occupancy is conditional upon my compliance with these terms and all applicable University regulations. (Attention is especially directed to Part III of the rules, regulations, and other terms.) If I violate any of these rules, regulations, and other terms, the University may revoke this license and may refuse to license me for any occupancy period subsequent to the one provided in this license. I further understand that the rules, regulations, and other terms of this agreement and University regulations are subject to reasonable changes. If I have been notified of such changes, the University may revoke this license should I violate any rules, regulations, or other terms in effect during my occupancy under this license.

Nothing in this license shall be interpreted as relief from the duty to comply with federal, state, and local law, and violation of any applicable law may be reason for revocation of this license.

In consideration of this license, I agree to pay the University according to the schedule of payments for the type of space I occupy as approved by Duke University, a copy of which has been furnished. I understand that, in the event the University revokes this license because I have violated any of the rules, regulations, or other terms of this agreement or University regulations, I must vacate the space I am occupying immediately and the University shall not refund any portion of the payment made for the semester in progress. In the event I officially withdraw, graduate, or cease for any reason to be a full-time student, I agree to vacate the space I am occupying within forty-eight (48) hours; I understand that I will be charged for housing based on the number of days I have occupied that space and will receive a refund for any amount I have paid for housing beyond the time of my departure. The number of days I have occupied the space will be determined according to the date Housing Management inspects the apartment and confirms that my space has been vacated.

\_\_\_\_\_  
(for Duke University)

\_\_\_\_\_  
(Signature of Student)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

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## RULES, REGULATIONS, AND OTHER TERMS FORMING A PART OF THE LICENSE OF CENTRAL CAMPUS APARTMENTS

One purpose of these terms is to establish a mutual understanding among students and the University with regard to use of facilities in the Central Campus Apartments. These rules, regulations, and other terms are an integral part of this license and are enforceable as covenants and conditions of the license. For further information please refer to the Central Campus Handbook.

### I. ELIGIBILITY

**Units in the facilities are available for assignment to full-time Duke University students who are working towards a degree. Students who withdraw from school or take a leave of absence must vacate the apartment within forty-eight (48) hours from date of such withdrawal or leave.**

### II. PAYMENTS:

- A. **Prepayment:** A fifty (\$50) prepayment fee must be paid by eligible students who wish to reserve a space in University housing for a subsequent academic year. This prepayment will be credited to the rent for the fall semester. The rent prepayment is not refunded to any student who cancels the housing reservation after the last day of spring semester classes unless the student is involuntarily withdrawn from the University.
- B. **Residential Deposits.** Unless previously paid, a student who wishes to reserve a unit in Central Campus Apartments, must submit a Residential Deposit of one hundred dollars (\$100) to the Dean for Residential Life or designee. While a student lives in University housing, it is understood and agreed that his/her Residential Deposit, shall not be applied to housing fees. Upon termination of this License and vacating University housing, Duke shall, within ninety (90) days, refund said deposit, less any outstanding fees incurred, in accordance with the established University policy. Charges for damages in excess of the Residential Deposit shall be assessed to the student. The Residential Deposit will not be refunded after an assignment has been made to students who cancel their assignments, forfeit their assignments, or fail to occupy the residential space except in the following instances: (1.) A student who has paid a prepayment for a subsequent academic year will receive a refund of the Residential Deposit if written cancellation is received by Residential Life by July 1; (2.) A student residing in University housing for the fall semester will receive a refund of the Residential Deposit if written cancellation for the spring semester is received and approved by Residential Life by December 1.
- C. **Key Deposit.** Each resident of a housing unit is required to obtain one key to the unit and one mailbox key at the time of his/her occupancy. A deposit for each of these keys will be charged to the student's Bursar's account at the rate published by the Department of Housing Management. Such deposit is refundable only if the keys are returned within forty-eight (48) hours of the termination of this License.
- D. **Housing Fees.** Payments for housing are to be made to the Office of the Bursar before occupancy in accordance with established terms of that office. Payments are to be made on a semester basis.

### III. RESERVATION, ASSIGNMENT, SPACE CHANGE, AND CANCELLATION PROCEDURES

- A. Students applying for spaces in Central Campus Apartments who have paid the required Residential Deposit will be assigned to the apartments by lottery. Undergraduate students who are presently living in University housing will be assigned to apartments in accordance with procedures published by the Office of Residential Life.



- B. The number of students to be assigned to various types of units is established by the Department of Housing Management.
- C. Every effort will be made to assign the students in accordance with his or her preference. Because this is not always possible, the Dean for Residential Life, or designee, retains the authority to make final space assignments.
- D. The exchange or transfer of apartments may be made only upon approval by the Dean for Residential Life or designee. It is the responsibility of a student vacating space or exchanging apartments to make the apartment ready for the new tenant. The space to be vacated will be inspected by a representative of Housing Management to relieve the vacating student of financial responsibility for damage occurring after the student vacates. Any unofficial apartment change may be reason for revocation of this license and will not relieve the student(s) involved of the obligation to pay occupancy, damage, and other costs for the assigned space.
- E. The Office of Residential Life makes no effort to assign individual bedroom space within each unit. That responsibility is left to the assigned occupants.
- F. Units shall not be occupied in whole or in part by any person other than those regularly assigned by the Dean for Residential Life. Occupants may not sublet assigned space. Guests are permitted for short periods only, provided all residents of that unit consent.
- G. The Dean for Residential Life, or designee, reserves the right to change space assignments if in his/her judgment such change(s) is(are) necessary.

#### IV. PROCEDURES, MAINTENANCE, STORAGE, AND DAMAGE

- A. Maintenance to buildings, fixtures, utilities, equipment, and furnishings will be performed on a routine basis; however, corrective emergency and preventive work will be performed as necessary.
- B. Prior to occupancy, the Department of Housing Management will clean each vacant unit and will correct deficiencies. An inspection form will be made available for each apartment. Each assigned student should note on the form the condition of the apartment and furnishings at the time of occupancy to prevent misunderstandings. Instructions on the form must be followed.
- C. Occupants shall maintain the demised premises, the furnishings and equipment therein in good condition and shall be responsible for all broken windows and door glass, the failure of plumbing or equipment caused by misuse and other damage beyond normal wear and tear. In such cases, occupants shall be assessed the cost of materials and labor as invoiced by the Department of Housing Management for repairs, replacements, or reassembly. The Department of Housing Management shall have routine maintenance performed and agrees to make such repairs as may be rendered necessary insofar as the cause thereof does not arise from the willful acts or negligence of the occupant(s). No alteration, addition, or painting may be conducted within the premises by the occupant(s).
- D. Locks and plumbing are not to be tampered with or changed by residents.
- E. The University retains the right to enter the premises without the tenant being present for the following reasons: (1) to take care of an emergency or failure of equipment which is causing damage or hazard to property or persons, (2) to conduct inspections to determine availability of space, (3) to carry out routine maintenance, and (4) during the break between the fall and spring semesters to ensure that the furnace has been left on and that the thermostats have not been set below 50 degrees. Furnaces that have been turned off will be turned on and thermostats will be set at 50 degrees by the Department of Housing Management. Entry into the apartment for other reasons will be made during reasonable hours with notice to the assigned occupant(s).
- F. Non-University property left in apartments after the license period terminates will be disposed of at the discretion of Housing Management.

- G. The unofficial use or possession of apartment keys, including possession of master keys or keys other than those assigned to the student, is prohibited.
- H. Lost/stolen keys must be reported immediately to the Central Campus Service Office and a replacement key must be obtained. An additional deposit will be charged to the student's Bursar's account. The deposit on the lost/stolen key will be forfeited and the lock(s) to the apartment will be changed if the resident is unable to present the lost/stolen key to the Central Campus Service Office within two weeks.
- I. The University is not liable for damage or loss of personal property. Because the University does not provide insurance, occupants are encouraged to provide their own personal property insurance.
- J. The University is not liable for damage, failure, or interruption of utilities. Interruption or curtailment of such services will not entitle the resident to any compensation or abatement of rent.
- K. Furniture or equipment owned by Duke University Housing Management placed in the unit may not be removed from the unit.
- L. Pianos, washing machines, dryers, dishwashers, radio transmitters, and waterbeds are not authorized in these units.
- M. Use of screws, hooks, decals, tacks, and adhesive on walls, furniture, or fixtures is prohibited. Small picture hanging nails provided by the Central Campus Service may be used; however, heavy items may not be hung.
- N. Washing of cars in the Central Campus area is prohibited.
- O. No dusting or shaking of mops, brooms, or other cleaning material from the windows, doors, and balconies is permitted.
- P. No fences may be put up around the apartments.
- Q. Outside clotheslines are prohibited.
- R. Access to roofs and attic spaces is prohibited.

#### V. TERMS AFFECTING RIGHTS, ORDER, HEALTH, AND SAFETY

The following terms are designated to protect the health and safety and to provide for the comfort and privacy of all students who are contracted to occupy units in the Central Campus Apartments. In addition to the rules, regulations, and other terms, any conduct which reflects a serious disregard for the rights, health, security, and safety of other residents will be regarded as a violation of the license.

- A. Combustible materials shall not be stored on the premises.
- B. Sidewalks, stairways, and entryways must not be used for purposes other than ingress or egress. Bicycles must not be left in these areas or other locations where they may cause harm to persons or groundskeeping equipment. Motorcycles must be parked in parking lots.
- C. Nothing shall be hung from balconies, porches, gutters, or stairwells.
- D. In accordance with North Carolina General Statute 14-269.2, no firearms, explosives, fireworks, highly flammable materials, or any articles which may be used as offensive weapons may be in the Central Campus facilities. This includes slingshots, clubs, pellet guns, rifles, BB guns, and all firearms and items of like kind.
- E. Tampering with electrical wiring, including but not limited to the installation of direct-wired ceiling fans and dimmer switches is prohibited.
- F. Delivery trucks, automobiles, motorcycles, scooters, and minibikes will not be permitted on lawns and walkways, patios, or stairwells. These vehicles must be parked in legal parking spaces. Motorcycles, scooters, and minibikes may not be stored in the apartment.
- G. Animals, including but not limited to birds and reptiles shall not be taken into or kept in or about the units. An extermination, at the resident's expense, will be done if an animal enters the apartment. Fish are allowed provided they are

- kept in an aquarium no larger than twenty-five gallons; the container is cleaned regularly; and no illegal species are kept.
- H. Residents shall maintain the areas adjacent to their apartments in a neat and orderly condition. No refuse, loose paper, cans, bottles, etc. shall be permitted to accumulate around the dwelling units. Any packing cases, barrels, or boxes used in moving must be removed by the occupants who are moving. Bulk refuse containers are located throughout the complex.
  - I. Campers, trailers, boats, or similar units may not be parked in the parking lots or other areas at the Central Campus Apartments.
  - J. Burning candles or other flames are prohibited in University housing.
  - K. Any student residing in the apartments who contracts an infectious or contagious disease should immediately report this to the Office of Residential Life.
  - L. Selling or soliciting on the premises of University housing by residents or outsiders, that is either commercial or unrelated to University objectives or activities is prohibited.
  - M. The apartment must be kept in good order and in a sanitary condition.
  - N. Laundry rooms will not be used for storage of personal effects, bicycles or the like. The University is not responsible for clothing lost or stolen from Central Campus laundries.
  - O. All users of the Central Campus pool must observe swimming pool regulations published by Housing Management. All persons use the pool at their own risk.
  - P. Boisterous conduct in violation of the University noise policy is prohibited. Occupants are responsible for the conduct of their guests, and any violation of these rules and regulations by a guest shall constitute a violation of same by occupants.
  - Q. Fire extinguishers are placed in each apartment for the safety of occupants and property. Tampering with this equipment or use for any purpose other than extinguishing fires is prohibited. Fires must be reported to Public Safety and Housing Management.

## VI. ENERGY CONSERVATION

All residents must comply with energy conservation programs as established by Duke University for residential facilities.

Residential Life  
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# Appendix B

## 1989/90 DUKE UNIVERSITY RESIDENTIAL FOOD SERVICES CONTRACT

1. Duke University policy requires that all undergraduate students residing on campus participate in the Dining Plan offered by University Food Services. The only exception to this policy is that Central Campus residents are excluded from this requirement.
2. For Purpose of this Contract, hereafter the contract participant shall be referred to as the contractor.
3. The contractor may select one of the Dining Plan options listed below (plans A-E). The contract shall be for one full academic year. The contract dollars purchased by the contractor shall be allocated on a semester to semester basis, with one half of this contract billed to your Bursar account prior to the beginning of each semester.
4. Dining contract dollars that are unused at the end of the first semester shall be carried forward to the second semester, but in no case shall second semester contract dollars be drawn against prior to the beginning of the second semester.
5. This contract shall be in effect for the period commencing the first day of Freshman Orientation in the Fall Semester and ending after dinner on the Monday, following graduation in the Spring Semester. Contract dollars remaining in the contractor's Dining Plan account at the end of the academic year shall be refunded based upon the schedule listed in 12-B and 12-C below.
6. The contractor may change the Dining Plan commitment to a different level for the second semester only during the period of Monday, September 25, 1989 through Friday, November 17, 1989. **There will be a fifteen dollar (\$15) charge for any Dining Plan change.**
7. Duke University's ID card, the Duke Card, shall be the medium by which you will access your Dining Plan contract dollars. This card must be presented to the cashier at the time of purchase, and shall be the only way of accessing your Dining Plan account.
8. The Dining Plan account is nontransferable, either in part or in whole. However, contractors may pay for a guest's transaction by way of their Dining Plan.
9. University Food Services reserves the right to determine the hours and days of operation for all facilities, the menu and price of same, and all other operational requirements relative to this contract.
10. The dining contract requires a twelve dollar (\$12) nonrefundable yearly fee plus one of the plans listed below.

A (\$1,320)

B (\$1,800)

C (\$2,040)

D (\$2,220)

E (\$2,460)

11. Additional dollars may be added to any Dining Plan listed above in increments of \$50. All additional dollars purchased shall be at full value, with \$50 invested equaling \$50 worth of buying power.

### 12. REFUND POLICY

- A. Official Leave of Absence or Withdrawal during the semester as certified by the Registrar or appropriate Dean, or student moving off campus (including to Central Campus) shall be refunded at full value of the remaining dollars in their account, less a twenty-five (\$25) withdrawal fee.

B. Balance remaining at the end of the semester for a one semester contractor:

The first \$50 remaining 100 credited to Bursar's account  
All dollars above the first \$50 50 credit to Bursar's account

C. Balance remaining at the end of the academic year, for full academic year contractor:

The first \$100 remaining 100 credited to Bursar's account  
All dollars above the first \$100 50 credit to Bursar's account

- 13. Any food removed from the "All You Can Eat" dining areas must be purchased at the a la carte price.
- 14. Any misuse of this contract, in part or in whole, by the contractor shall be subject to the provisions of the Duke University Judicial Code.

I have read the above contract and accept the terms and conditions as set forth herein.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Please circle the appropriate descriptions below:

Please indicate your choice of Dining Contract Plan by circling the appropriate letter.

On Campus  
Freshman  
Junior

Off Campus  
Sophomore  
Senior

<u>PLAN</u>	<u>TOTAL COST*</u>
A	\$1,332
B	\$1,812
C	\$2,052
D	\$2,232
E	\$2,472

Other (explain) \_\_\_\_\_

Please Print or Type the following:

SOCIAL SECURITY # \_\_\_\_\_

\*Total cost includes the \$12 annual fee

FULL NAME \_\_\_\_\_

Please return the last copy of this contract for your records.

**Do not include payment — you will be billed later.**

# Appendix C

## JUDICIAL SYSTEM OF DUKE UNIVERSITY

### Article I: The Judicial System

1.010 The judicial system of the University shall consist of the University Judicial Board a Judicial Board for each of the communities hereafter defined (see Article III), and a Judicial Board for each of the residential units in the University.

### Article II: The University Judicial Board

#### 2.010 Jurisdiction

- a. The jurisdiction of the University Judicial Board shall be limited to cases arising out of the Pickets and Protests Regulations and cases involving more than one of the communities as determined by the Vice-President for Student Affairs in consultation with the Chancellor and the Chairman of the University Judicial Board.
- b. The University Judicial Board shall have jurisdiction over members of the student body, members of the faculty, and administrative personnel of the University not subject to the *Personnel Policy Handbook*.

#### 2.015 Filing of Charges; Responsibilities of Vice-President for Student Affairs

- a. The Office of the Vice-President for Student Affairs shall have responsibility for receiving complaints, conducting investigations, and preferring charges concerning offenses within the jurisdiction of the board. The University Judicial Board shall hear no case without a finding of probable cause made by the Vice-President for Student Affairs, whose signature to the charge or charges shall constitute sufficient evidence of such finding.
- b. To assist the Vice-President for Student Affairs in the investigation of complaints, the gathering of evidence, and the preparation of charges, investigative and judicial aides may be appointed by the Vice-President and shall serve at his/her pleasure and under his/her direction. The number and specific duties of such aides shall be determined by the Vice-President for Student Affairs, who shall be fully responsible for all duties performed by them in their capacity as aides.
- c. The Vice-President for Student Affairs shall subpoena witnesses as directed by the University Judicial Board.
- d. The Vice-President for Student Affairs may delegate all or any portion of his/her duties as regards these judicial procedures to an aide or aides whose appointment is approved by the Vice-Provost and Dean of Undergraduate Instruction. The Vice-President for Student Affairs shall be responsible for the discharge of all duties thus delegated.

#### 2.020 Membership

The University Judicial Board shall consist of a Chairman appointed by the Chancellor, five faculty members (two of whom shall be from the Law School) appointed by the Executive Committee of the Academic Council, and two student members from each of the communities (except in the case of the undergraduate community where there should be four members) elected by each community's Judicial Board. The Chairman of the Board shall select five-person panels consisting of a Chairman and an equal number of students and faculty. Cases referred to the board shall be assigned to the panels in rotation, provided that a member of a panel may, at his/her request, be excused from sitting on a case by the Chairman of the Board, who may appoint a substitute from among the other members

of the board. Each panel shall be known as a "Hearing Committee of the University Judicial Board."

#### 2.030 Terms of Members

Faculty members shall normally serve for two-year terms, but are eligible for reappointment. The terms should be staggered in order to provide continuity. Two of the initial appointees shall be appointed for one-year terms. Student members shall serve for one-year terms, although they may be eligible for re-election. The board has the right to remove any member of the board for cause by a vote of a two-thirds majority of all members. The vacancy shall be filled promptly according to the original procedure.

#### 2.040 Conduct of the Hearing

- a. The hearing will be conducted in private unless the accused requests an open hearing. If any objection is raised to conducting an open hearing in any particular case, the Hearing Committee of the University Judicial Board will decide the issue by majority vote. If the decision is made not to hold an open hearing, the accused shall be informed in writing of the reasons for the decision.
- b. The University and the accused may be represented by an adviser of his/her choice.
- c. The board shall promulgate its own rules of procedure consistent with academic due process and all provisions of this document.
- d. The accused has the right to challenge on the grounds of prejudice any member of the Hearing Committee sitting on his/her case. If an accused makes such a challenge, the Hearing Committee shall deliberate in private to determine whether cause exists. By a majority vote of the members of the tribunal (excluding the member being challenged), a member shall be removed from the case and replaced by a member of the board designated by the Chairman of the Judicial Board. In addition, the accused may exercise a challenge directed at the entire panel, in which case the challenge shall be made to the Chairman of the University Judicial Board, who shall excuse the panel challenged and refer the accused's case to the next panel in rotation.

#### 2.05 The Right of Appeal

- a. In cases heard by the University Judicial Board, there will be no appeal when the accused is acquitted.
- b. A student or administrator who is not a member of the faculty convicted by the University Judicial Board may appeal to the President, or in his/her absence, the Provost, in which case such appeal shall be solely on the record of the proceedings before the Hearing Committee. Argument or appeal shall be on written submission, but the President may, in addition, require oral argument.
- c. A member of the faculty convicted by the University Judicial Board may appeal to the Faculty Hearing Committee authorized under the provisions for Academic Freedom and Tenure of Duke University.

#### 2.060 Status of the Accused

Charges must be prepared without delay following the alleged commission of the offense. Pending final verdict on charges against the accused (including appeal), his/her status shall not be changed, nor his/her right to be on campus to attend classes suspended, except that the Chancellor or Provost may impose an interim suspension upon any mem-

ber of the University community who demonstrates, by his/her conduct, that his/her continued presence on the campus constitutes an immediate threat to the physical well-being or property of the members of the University community or the orderly functioning of the University. The imposition of interim suspension requires that the suspended individual shall immediately observe any restriction placed upon him/her by the terms of the suspension. The suspended individual shall be entitled to a hearing within three (3) days before the Hearing Committee on the formal charges. If he/she requires additional time to prepare his/her case before the Hearing Committee, he/she shall be entitled to an informal review of the decision imposing interim suspension by a three-person committee chosen from the members of the University Judicial Board by its Chairman. Interim suspension is an extraordinary remedy which will be invoked only in extreme cases where the interest of the University and members of its community require immediate action before the Hearing Committee can adjudicate formal charges against the suspended individual. If interim suspension is imposed and the accused is later found innocent, the University shall seek restitution as provided by the Hearing Committee with respect to the student's academic responsibilities incurred during the period of suspension.

#### 2.070 Civil and Criminal Courts

Members of the University community may be subject to civil or criminal proceedings in a local court. The Chancellor may initiate legal action seeking injunctive or other civil relief, or file criminal charges when it is necessary to protect the person or property of members of the University community, or the orderly functioning or property of the University. Such action may be in addition to the filing of formal charges before the University Judicial Board and/or interim suspension.

#### 2.080 Sanctions

- a. A Hearing Committee of the University Judicial Board shall have the power to impose the following penalties upon students:
  1. Expulsion. Dismissal from the University with the recommendation that the person never be readmitted.
  2. Suspension. Dismissal from the University and from participation in all University activities for a specified period of time after which the subject may apply for readmission.
  3. Suspended Suspension. Penalty (2), suspended because of unusual mitigating circumstances. In a period of time specified, conviction before the University Judicial Board, or before one of the community Judicial Boards may result in suspension.
  4. Disciplinary Probation. Placing a student on a probationary status for a specified period of time, during which conviction of any regulation may result in more serious disciplinary action.
  5. Exclusion from participation in extracurricular activities. Without limiting the generality of that penalty, such restrictions might involve participation in any collegiate athletics, or any public participation or performance in the name of the University. However, a Hearing Committee may not exclude a person from performance of the duties of an elective office, but may make such a recommendation to the appropriate organization. This penalty may be imposed by itself or in addition to any of the other enumerated penalties.
  6. Censure. Written reprimand for violation of the specified regulation, including the possibility of more severe disciplinary sanction in the event



of conviction for the violation of the same or one of equal seriousness within the period of time stated by the reprimand.

7. Admonition. By an oral statement to the offender that he/she has violated the University rules or has been in contempt of the board.
  8. Restitution. Payment for all, or a portion of property damage caused during the commission of an offense. This penalty may be imposed by itself, or in addition to any of the other penalties.
  9. Fines. Payment of reasonable sums to be determined by a Hearing Committee. This penalty may be imposed by itself, or in addition to any of the other penalties.
  10. Exclusion from social activities where the nature of the violation so indicates including, but not limited to, curfews or other revocation of upper-class privileges.
- b. A Hearing Committee of the University Judicial Board shall have the power to impose the following penalties upon faculty members and administrative personnel not subject to the provisions of the *Personnel Policy Handbook*.
1. Dismissal. Dismissal or termination of appointment.
  2. Censure.
  3. Admonition.
  4. Restitution.
  5. Fines.

#### 2.085 Other Powers

The Hearing Committee may recommend to the University that it seek restitution with respect to the accused's University responsibilities incurred during a period of suspension or during the period when a hearing has been conducted or shall make such other nonpunitive recommendations with respect to the accused as it shall deem appropriate.

#### 2.090 Records

The board shall promptly arrange a policy of keeping its own records, subject to the University policy on confidentiality.

#### 2.095 Excusal of Members of the University Community from University Obligations

Any member of the University community whose presence is required at a hearing shall be excused from the performance of any University responsibilities which would normally be performed at the time when his/her presence is required before the Hearing Committee.

#### 2.096 Revocation of Probation or Suspended Suspension

In the event that a student has been placed on suspended suspension or disciplinary probation by the University Judicial Board and subsequently is convicted of a violation of a regulation by any other University tribunal, the suspension of his/her suspension or the revocation of his/her probation will not automatically occur. In such a case the student shall be entitled to a hearing being limited to the issue of whether his/her probation should be revoked or whether he/she should be suspended as the result of the original conviction and the conduct which gave rise to the second conviction.

## Article III: Community Judicial Boards

### 3.010 Community Judicial Boards

There shall be an undergraduate community consisting of the undergraduates in Trinity College of Arts and Sciences and the School of Engineering; a Divinity School community consisting of all students in the School of Divinity; a Law School community consisting of all students in the School of Law; a Medical School community consisting of all students in the School of Medicine; an Allied Health community consisting of all degree and certificate (i.e., paramedical, nondegree) students in the School of Allied Health; a Forestry and Environmental Studies School community consisting of all students in the School of Forestry and Environmental Studies; and a Graduate School community consisting of all students in the Graduate School. Except as hereafter provided for the undergraduate community, each community shall have such judicial system as its governing body may provide.

## Article IV: The Undergraduate Community

### 4.010 The Undergraduate Judicial Board

#### A (1) *Board Established.*

There is established an Undergraduate Judicial Board, hereinafter denoted as the board.

#### \* A (2) *Membership.*

The board shall have thirty-five (35) members. Fifteen (15) will be from among the undergraduates, twelve (12) will be from among the faculty (Trinity College and the School of Engineering), and eight (8) will be from among the deans in the undergraduate school and college.

#### A (3) *Selection of Undergraduate Members.*

Student members of the board will be chosen from among interested rising juniors and seniors as follows:

- a. Interested candidates will apply for positions by completing written forms devised by the board.
- b. The candidates will subsequently take an objective-type written questionnaire on the several aspects of the undergraduate judicial system.
- c. Those obtaining a passing score, as defined by the board, are deemed eligible for interviews.
- d. Interviews will be conducted by senior student members of the board and one representative of the Undergraduate Student Government appointed by the Chief Executive Officer of that government.
- e. From among those interviewed, one nominee shall be recommended for each vacancy together with a total of three (3) alternates.
- f. All those nominated are subject to approval by the legislature of the Undergraduate Student Government as advised by a representative of the board in attendance.
- g. At every stage of this process, consideration shall be given to the appointment of at least one student from the undergraduate school and college.
- h. Except that interim members as provided for in A(6) who have served for at least one (1) semester during their junior year will become regular members of the board for the following academic year as a matter of course.

\* A (4) *Selection of Faculty Members.* Faculty members of the board will be appointed by the duly empowered committee of the Undergraduate Faculty Council of Arts and Sciences through the Dean of Trinity College and Dean of Arts and Sciences and by the Dean of the School of Engineering.

A (5) *Selection of the Dean Members.* Appointees will be deans in the undergraduate school and college, but will not include either the Dean for Student Life, the Dean for Residential Life or the Vice-President for Student Affairs, including their assistants.

A (6) *Selection of Interim Members.*

a. Interim undergraduate vacancies on the board are to be filled through nomination(s) of one or more of the previously designated alternates by a concurrent vote of two-thirds (2/3) of the full board membership and subsequent approval by the legislature of the student government.

\* b. Interim faculty vacancies are to be filled by the duly empowered committee of the Undergraduate Faculty Council of Arts and Sciences.

c. Any undergraduate member of the board who takes a leave of absence while remaining in good standing in the University will resume, upon return, the place previously vacated on the board.

d. Interim members will serve only to the end of the regular academic year whereupon the position held will be vacated and filled in the manner prescribed in A(3) through A(5).

e. But interim members serving during leaves of absence of regular members will terminate their duties and return to their former status as alternates upon return to service of that regular member.

A (7) *Removal of Members.* The board may remove any member for cause by a two-thirds (2/3) majority of the full board. The vacancy so created will be filled forthwith in the manner prescribed in A(6).

B (1) *Terms of Undergraduate Members.* Undergraduate members of the board will ordinarily serve during good behavior for terms not exceeding two years.

B (2) *Terms of Faculty and Dean Members.* Faculty and dean members will serve two-year terms, subject to reappointment upon consent. To insure staggered terms, they may be appointed for a single year.

C (1) *Board Organization:* The full board will elect, by majority vote, a Chairman and Vice-Chairman, both of whom must be undergraduates.

C (2) *Board Calendar.*

a. *Regular Terms.*

The board or parts thereof will ordinarily hear and dispose of all pending cases in which charges have been preferred, during the regular fall and spring semesters, and following the end of spring semester.

b. *Summer Session Terms.*

1. The Chairman will ascertain the local availability of board members for summer session service and those within a 200 mile radius who may be invited by the Dean for Student Life to serve at University expense.

- \* 2. The Chairman of the Undergraduate Judicial Board will provide the Dean for Student Life with a roster of board members available for service on the Undergraduate Judicial Board during all or any portion of the summer sessions.
- 3. The Dean for Student Life will constitute a five (5) member Hearing Committee from this list, appoint a chairman and provide an ordinary hearing committee including at least one (1) faculty member and two (2) students.
- 4. If the number of student members drawn from the rosters provided under C(2)(b.)(2) above is insufficient to constitute the hearing panel provided for in C(2)(b.)(3) above, the Dean for Student Life, with consent of the Chief Executive Officer of the Undergraduate Student Government, will appoint the necessary number of students drawn from the undergraduate student body.
- 5. The Summer Session Hearing Committee will function in the same manner and with the same procedure as a Regular Term Hearing Committee, except that the accused may not enjoy more than one (1) peremptory challenge.

C (3) *Duties of Officers.*

- \* a. The Chairman, Vice-Chairman, or their designee, will preside over any meeting of the board or any meeting or hearing of a part thereof.
- b. The Chairman will maintain a roster of available members for the regular and summer session terms (see C[2]).
- \* c. The Chairman and the Dean for Student Life or his/her designee will prepare a "Semester Report of the Undergraduate Judicial Board" to be issued in January and May. It will be a statistical survey designed to order cases: by volume, classification, disposition, and current status (e.g., filed, pending, heard, on appeal to Dean or to Vice-President for Student Affairs).
- \* d. The Chairman and the Office of Student Life will prepare and issue an "Annual Report of the Undergraduate Judicial Board" to be compiled following adjournment of the board at the end of the spring semester. The contents will contain:
  - 1. A listing, by types of cases, of abstracts of all completely adjudicated cases.
  - 2. A statistical survey of the business of the board during the preceding academic year.
  - 3. A commentary on that business.
  - 4. Any recommendations which the board wishes to make.
  - 5. The "Annual Report" will be released prior to freshman registration in the fall semester and will constitute the basis of an early fall semester interview with the *Chronicle* to be held by the Chairman.
- \* e. The Chairman and/or Vice-Chairman, as well as a representative of the Office of Student Life, will attend one meeting of UFCAS at the beginning of either semester to discuss the concerns of the board in relation to the faculty and the concerns of the faculty in relation to the board.
- \* f. The Chairman and/or Vice-Chairman, as well as a representative of the Office of Student Life, will call a meeting with the Directors of Undergraduate

Studies (DUS) at both the beginning and the end of each academic year. The DUS shall serve as the liaison between the UJB and the faculty. The DUS will:

1. Apprise the faculty of the topics and issues covered in his/her meetings and with the Chairman and/or Vice-Chairman,
2. Receive copies of the board's opinions for all academic dishonesty cases and keep the opinions on file for faculty perusal,
3. Consult with faculty members in his/her department when academic dishonesty violations appear to have been committed. Records should be maintained of:
  - number of students suspected
  - number of students confronted
  - number of students referred to the UJB
  - number of students disciplined by the faculty member (action taken)
4. Encourage faculty to use the UJB when appropriate, and
5. Contact the Office of Student Life and/or board members, who will be available for consultation, when he/she or a faculty member wishes to discuss any matter relating to the UJB.

D (1) *Hearing Panel Organization.* Hearing panels will consist of seven (7) members as assigned by the Dean for Student Life in consultation with the Chairman or Vice-Chairman. Each hearing panel will consist of four (4) undergraduates, two (2) faculty members, and one (1) dean. One student member will be designated as Chairman of the panel.

D (2) *Modified Hearing Panel Organization.* In the interest of speedy disposition, a panel of reduced size may be convened, but in no panel shall it consist of fewer than five (5) members appointed by the Dean for Student Life in consultation with the Chairman or Vice-Chairman. Each such panel will consist of three (3) undergraduates, one (1) faculty member, and one (1) dean.

D (3) *Substitution of Hearing Panel Members.* Any member of a panel may, at his or her request, be excluded by the Chairman of the Board from sitting on any case. The Chairman of the Board will thereupon appoint a substitute member from among the relevant class of members of the board.

E (1) *Jurisdiction.* The board will exercise jurisdiction over cases:

a. In which the accused is a named student

- currently enrolled in, or
- not yet matriculated to, or
- readmitted to and not yet matriculated to

programs of the undergraduate college or school.

b. In which the accused is a residential or nonresidential cohesive unit, as represented by an officer or regular member.

c. Which fall without the jurisdiction of the University Judicial Board.

d. Which fall within the classification of offenses stipulated in the Judicial Code of the undergraduate community (see pages 42-44) and the University Regulations and Policies (see pages 45-58) in this bulletin.

F *Functions of Dean for Student Life.*

- F (1) The Dean for Student Life or designee is responsible for receiving complaints, conducting investigations, gathering evidence, and preparing and preferring charges relating to offenses within the jurisdiction of the board.
- F (2) The Dean for Student Life may appoint assistants, in such numbers and for such duties under his/her supervision in order to faithfully execute his/her responsibilities, as the Dean shall deem convenient and useful.
- F (3) The Dean for Student Life is responsible for maintenance of the records of the board. These records include:
  - 1. A public permanent precedent file provided by panels. It consists of abstracts specifying charges, facts, case dispositions and rationales for such dispositions. Identification of the party or parties as well as of witnesses will be omitted.
  - 2. A permanent confidential case file.
- \* F (4) The Dean for Student Life or his/her designee, jointly with the board, is responsible for recruitment, training, supervision, and direction of a staff of advisers available to accused students.
- G *Prehearing Procedures.* Upon receipt of a complaint, the Dean for Student Life or duly appointed assistants will:
  - G (1) Promptly assemble and examine all evidence either material or relevant to the allegation in which task the Dean or the Dean's assistant shall enjoy prompt and full cooperation from all parties concerned. This investigatory process may include, but is not confined to:
    - a. Receipt of any oral and/or written evidence including documents and records.
    - b. Interviewing the accused which interview must begin with notification by the Dean or assistant of: a right to remain silent, a right to an adviser as defined herein, a right to waive knowingly one or both of these rights as well as a written and signed acknowledgment by the accused attesting to an understanding of these rights (Cf. I(8)(a)).
    - c. Interviewing any holder of evidence.
    - d. Receipt from the accused of a written statement submitted in his or her behalf which document will become part of the case record.
  - G (2) Promptly determine on the basis of the preliminary investigation whether or not there exists probable cause for believing that the accused person committed the alleged act(s).
  - G (3) The Dean for Student Life is responsible for finding of probable cause. In determining whether to prefer charges against any accused, the Dean will consider:
    - a. *Civil proceedings completed.* If, in the judgment of the Dean for Student Life, any civil or criminal liability the accused may have already incurred by reason of the action of any civil tribunal adequately vindicates the interest of the University in punishment of the accused, the Dean shall not prefer charges against the accused. The Dean shall, however, report to the Judicial Board finding of probable cause and reasons for not preferring any charge.
    - b. *Civil proceedings pending.* If any civil or criminal action is pending in any civil tribunal, and in the judgment of the Dean for Student Life, prompt trial before the Judicial Board would be prejudicial and unreasonably burdensome to the accused in respect to the civil tribunal proceedings, notwithstanding

the finding of probable cause, the Dean for Student Life may defer preferring any charge. In making this determination, the Dean will consider the nature of the offense, the nature of the defense that may be offered in either the civil or University proceeding, the punishment that may be visited on the accused in either proceeding, the likely delay in the civil proceedings, any possible impairment of the accused's ability to defend him/herself in either proceeding by reason of its contemporaneous pendency and the preservation of general peace and order within the University community. If, after a finding of probable cause, the Dean for Student Life decided either to defer preferring charges or definitely to abandon them in the situations covered by this paragraph, the Dean shall nevertheless report to the Judicial Board his/her findings of probable cause and reasons for deferring or abandoning the preferring of charges.

- c. *Civil proceedings in future.* If any civil or criminal action is threatened or likely, the Dean for Student Life will be governed by the same considerations set forth in paragraph (b.), and in addition by the degree of likelihood of civil or criminal proceedings against the accused. If, after a finding of probable cause, the Dean for Student Life decided either to defer preferring charges or definitely to abandon them, in the situations covered by this paragraph, the Dean shall nevertheless report to the Chairman of the Judicial Board the finding of probable cause and reasons for deferring or abandoning the preferring of charges.

G (4) In circumstances so warranting under G (3) a.-c. the sanction of interim suspension may be invoked. (See K (13)).

G (5) *Referral.*

- a. The Dean for Student Life may refer the case to the appropriate agency for resolution if that officer finds that the case, whether or not probable cause exists, falls without the board's jurisdiction.
- b. At any time prior to imposition of verdict and sanction, any member of a panel may object to further consideration of the case on grounds that the board lacks jurisdiction. Thereupon the panel must resolve the jurisdictional question raised. If a panel majority believes the board lacks jurisdiction over the case, the proceedings will be suspended, and the matter referred to the Chairman of the Board for subsequent resolution of the question by the full Undergraduate Judicial Board. The decision of a majority of those board members present will be final, and the case will be either retained by the board accompanied by referral back to the original panel or be referred to the appropriate agency for disposition.

G (6) *Terminate action and report this fact if:*

- a. No probable cause is found.
- b. After examination of the Undergraduate Judicial Code and the University Regulations, it is determined that commission of the alleged act does not violate any provision(s) found in the duly promulgated codes, rules, and regulations of the University.
- c. In the event that the Dean for Student Life should refuse or fail for any reason to receive complaints and/or conduct investigations, and/or find probable cause and/or prefer charges, an aggrieved party may appeal such action or inaction on grounds of new or different evidence previously unavailable. This step may be made by filing with the Chairman of the Board a typed petition entitled: "Petition to Find Probable Cause." Upon receipt of this petition, the Chairman of the Board will direct the Dean or will unilaterally appoint

an investigator to find facts on the basis of which a full seven (7)-member hearing panel may determine the existence of probable cause sufficient to warrant a regular hearing in due course.

\*G (7) *Probable Cause Notice: Undergraduate Judicial Board Hearings.* If probable cause is determined to exist, the Dean for Student Life will promptly draw up a written notice to be transmitted to the accused together with a summons to appear for a panel hearing at the time and place specified. The notice will include:

a. The charges.

\* b. Referral to text of the relevant provision(s) of the Judicial Code, rules, and regulations.

\* c. Any additional evidence produced during the investigative process.

d. A statement of procedural rights available to the accused.

e. Any other material which the board may instruct the Dean for Student Life to supply the accused.

f. The signature of the Dean for Student Life or appointed assistants.

g. List of members of the panel designated to hear the case.

\*G (8) *Probable Cause: Administrative Hearings.* Should the Dean for Student Life, after consulting with the Chairman of the Undergraduate Judicial Board, determine that either the nature or related extenuating circumstances of a case render it amenable to the administrative hearing alternative provided for in H(1)(b.), a written notice will include explicit notice of the availability of such forum to an accused who signs a waiver of the right to a formal hearing before the Undergraduate Judicial Board. Administrative hearing decisions are final; no appeals may be taken from them with the exception of a sanction of suspension or expulsion. (See Section L.)

G (9) Prepare a written report of findings and transmit that report to the appropriate tribunal. This report will contain a copy of the probable cause notice (G (8)), all evidence gathered in the preliminary investigations, with its sources and statement of the rights of the accused. Nowhere in this report will a personal opinion be expressed as to the merits of any evidence, or as to the guilt or innocence of the accused. However, where there are conflicts in the evidence the Dean will draw the attention of the panel to them. The report shall become a part of the written record of the hearing.

G (10) Subpoena witnesses as directed by the Chairman of the hearing panel.

\*H (1) *Administrative Hearings.*

\* a. For academic dishonesty violations, an accused may request that his/her case be heard by the appropriate Dean of his/her college or school, who may refuse to hear it. In all non-academic violations, the accused may request that his/her case be heard by the Dean for Student Life and/or that officer's designee(s) as specified in G(8). In fixing the sanction, the Dean or designee(s) is(are) governed by all penalties enumerated in Section K of the code. Administrative hearing decisions are final; no appeals may be taken from them with the exception of a sanction of suspension or expulsion. (See Section L.)

\* b. The Dean for Student Life and/or that officer's appointee(s) will confer at the earliest convenient time with an accused who met the requirements specified in G(8).



- c. The Chairman of the Board will receive prompt notification of hearings held under *a.* and *b.* above and a copy of the case abstract as defined in J(14)(b.).
- \* I *Undergraduate Judicial Board Prehearing Procedures.*
    - I (1) *Charge required.*
      - a. No case may be heard by the board in the absence of a finding of probable cause by the Dean for Student life and a clear statement of the charges against the accused or by direct petition to the board. (Cf. G(7) and G(6)c)
      - \* b. The Dean's signature on the Probable Cause Notice (G (7)) attests to a sufficiency of inculpatory evidence, existence of the board's jurisdiction, and the completeness of the charges.
    - \* I (2) *Hearing Schedules.* The hearing, based on contents of the Probable Cause Notice (G(8)) will take place speedily, ordinarily within thirty (30) days following presentation of charges to the accused.
    - \* I (3) *Notice.* The accused will be given at least forty-eight (48) hours notice prior to the hearing or prior to continuation of a hearing recessed under J(8) subject to waiver as provided for in I (4).
    - \* I (4) *Waiver.* The accused may waive by a signed written statement the notice and/or the forty-eight (48) hour rule with reference to I (3) above and I(11)b) below.
    - I (5) *Continuances.* Should the accused desire additional time to prepare his or her defense, a petition to that effect may be directed to the Chairman of the Board not less than twenty-four (24) hours prior to the scheduled hearing. In the Chairman's discretion, the accused may be granted a hearing delay of reasonable duration.
    - I (6) *Contempt.* A willful or deliberate action on the part of the accused to impede, obstruct, unduly delay, or interfere at any stage with, in any manner, the proceedings then or thereafter before or potentially before the board may be deemed an act or acts in contempt of the board as determined by a majority of the relevant panel after issuance of a "show cause" order and in a separate regular proceeding held notwithstanding failure of the accused to appear in defense. K(12).
    - I (7) *Removal and Challenges.*
      - a. *Voluntary Removal.* Board members may excuse themselves from a hearing panel for any reason (see D(3)).
      - b. *Recusal.* No person presenting evidence against the accused may at any time sit in judgement upon the accused.
      - c. *Challenges.*
        - 1. *For Cause.* The accused has the right to challenge on the grounds of prejudice any member of the hearing panel sitting on his/her case. If an accused makes such a challenge, the panel shall deliberate in private to determine whether cause exists. By majority vote of the members of the panel (excluding the member being challenged), a member shall be removed from the case, and replaced by a member of the board designated by the Chairman of the Board.
        - 2. *Peremptory.*
          - a. In addition, the accused may exercise a peremptory challenge directed at not more than seven (7) panel members even if a new trial on an amended charge is required. (Cf J(8)d).

- \* b. At the time the accused is informed of the hearing date, he/she shall be presented with a list of the members of the panel designated to hear the case.
- c. If the accused wishes to make a peremptory challenge(s), he/she shall make the challenge(s) in writing to the Office of the Dean for Student Life within forty-eight (48) hours of the notification of the scheduled time of the hearing.
- d. The Office of the Dean for Student Life will transmit this challenge to the Chairman of the Board, who will excuse the panel challenged, and refer the accused to the next panel in rotation.
- e. The accused retains the right to challenge for cause whether or not he or she has used the seven (7) peremptory challenges except as noted in C(2)b and C(5).

I (8) *Adviser*

- a. *Right to Adviser.* The accused enjoys the right to have an adviser. The Dean for Student Life will assign the accused an adviser at notification of the investigation. The accused may decline the assigned adviser and may select any other member of the University community except members of the board, or the accused may select no one. (G(1)b).
- b. The function of the adviser is to advise the accused in the preparation and presentation of his or her case, but the adviser may not directly address the panel nor any other participants during the formal hearing proceedings.
- c. Witness or witnesses as defined in I(10)a may request the panel chairman to permit the presence of adviser during hearing proceedings under conditions enumerated in I(8)a and b.

I (9) *Role of Accused.*

- \* a. *Presentation of Case.* The accused enjoys the right and will be advised of the right to produce witnesses, introduce documents, and offer testimony in his or her own behalf. The accused may present no more than two written character references to be submitted to the hearing panel prior to the hearing.
- b. *Testimonial Rights.*
  1. The accused enjoys the right against self-incrimination, the right to remain silent respecting the charges brought against him/her, before, during, and after the hearing. No inference of guilt may be drawn from the silence.
  2. But any evidence pertinent to the charges volunteered by the accused may be used as evidence against him/her.
  3. If the accused elects to offer testimony on a specific act of misconduct, he/she waives a right to continued silence, and must answer truthfully all questions pertaining to the act.
- c. *Examination of Witnesses.*
  1. Under the supervision of the panel chairman, the accused may question directly any witness.
  2. The moving party or the accused, with or without the adviser's assistance, may submit questions in writing to the chairman of the hearing panel or during the proceedings.

3. The chairman must ask such question(s) so submitted unless they are unfair and/or irrelevant and/or purely capricious.

4. A copy of the written questions will be appended to the record.

I (10) *Witnesses.*

- a. *Defined:* Any person with direct knowledge relevant to a case pending before the board is a material witness.
- b. *Duty to Appear.* The Dean for Student Life may require the appearance of material witnesses or, upon the written request of the complainant and/or the accused, the Dean will require the appearance of such witnesses.
- c. *Notice to.* The Dean for Student Life will notify such witness(es) in writing of the time, place, and purpose of their appearance as well as of the right against self-incrimination.
- d. *Contempt of.* Willful and deliberate failure and/or refusal of any material witness to honor a subpoena authorized by the board and duly served by the Dean for Student Life or a representative may be deemed an act in contempt of the board.

I (11) *Discovery.*

- a. No extrinsic evidence. In reaching its judgment, a panel will consider only the report of the Dean for Student Life, documents submitted into evidence, and the testimony of: moving party(ies), accused, and witnesses at the hearing.
- \* b. The accused has the right to examine the written statement of any witness which is relevant to the case at least forty-eight (48) hours prior to either the hearing or continuation of a hearing recessed under J(8) subject to waiver as provided for in I(4).
- c. *Confrontation.* The accused has the right to confront any witness who has given a statement relevant to the pending case.
- d. *Excuse priority.* Any student whose presence is required at a hearing will be excused from any other University responsibility which might prevent, impair, or delay his/her presence before a panel, and both the board and the Dean for Student Life will employ their good offices to assist such students in making satisfactory arrangements.

I (12) *Closed Hearings.* The hearing will be closed unless the accused requests an open hearing. If any objection to an open hearing is lodged, the panel will decide the issue by majority vote and, if negative, the accused will receive from the panel a written statement of reasons for rejection of his/her request.

J *Hearing Procedure.*

- J (1) *Opening.* The Chairman will open the proceedings by noting the date, identity of the party(ies), the charges, and identity of all panel members.
- J (2) *Plea.* The accused will then plead guilty, not guilty, guilty in part and not guilty in part, or move to postpone the hearing for good cause shown.
- \* J (3) *Report of the Moving Party.* At this time, the Chairman may invite the moving party(ies) to make a statement, not to exceed five (5) minutes, summarizing the essential facts and expressing opinions thereon. At any point prior to this stage of the hearing, the moving party(ies) may decline such invitation.

- J (4) *Case for Accused.* The Chairman of the panel will request the accused to present his or her case. (See I(7)c(1) and I(7)c(2), I(8)b, I(9).) The accused may waive this right by a verbal declaration (See I(9)b.)
- J (5) *Witnesses.*
- a. All witnesses will be sequestered at the commencement of proceedings and will appear before the panel consecutively. But the panel Chairman may suspend this rule and direct attendance of all witnesses in the hearing room.
  - b. The accused may call and direct questions to witnesses as prescribed in I(9)a and c, respectively.
  - c. The panel may call and question witnesses.
- J (6) *Examination of Witnesses.*
- a. Under the supervision of the panel chairman, the accused may question directly any witness.
  - b. The moving party or the accused, with or without the adviser's assistance, may submit questions in writing to the Chairman of the hearing panel before or during the proceedings.
  - c. The Chairman must ask such question(s) so submitted unless they are unfair and/or irrelevant and/or purely capricious.
  - d. A copy of the written questions will be appended to the record.
- J (7) *Evidentiary Rules.*
- a. All evidence which the panel considers relevant will be admitted including hearsay and expressions of opinion.
  - b. Wherever possible oral testimony rather than written statements should be presented.
  - c. Statements made by unidentified witnesses or those absent at the hearings, neither of which can be confronted by the accused, may not constitute a sole or substantial basis for conviction.
  - d. No evidence obtained through unlawful search and seizure or in violation of the *University Statement on the Privacy of Students' Rooms* will be admissible at the hearing.
- J (8) *Recess and Termination of Hearings.*
- a. The Chairman may recess hearings for a short duration of time in order to facilitate the work of the panel.
  - b. By vote of a majority of the panel members, hearings may be recessed for an extended duration of time in order:
    1. to accommodate extraordinary circumstances such as personal emergencies
    2. to acquire additional evidence or testimony
    3. to provide adequate time for considering and setting sanctions (see: I(3) and I(11)b.)
  - c. A witness or accused enjoys the right to a brief recess after a lapse of one (1) hour from commencement of the official record as provided for in J(14)a.

- \* *d.* However, no recess may be declared for the purpose of amending the original charges against the accused. If it is determined during the hearing and prior to verdict and judgment that the charges must be amended,
  - (1) with the unanimous consent of the hearing panel and the agreement of the Accused, the charge(s) may be amended and the hearing may continue, or
  - (2) without the unanimous consent of the hearing panel or the agreement of the Accused, the hearing must be terminated without prejudice and the procedures set forth in Section I reinstated.
- \* *J (9) Status of Accused Pending Verdict and Appeal (Interim Suspension).* Pending verdict on charges (including appeal) against the accused, the status as a student cannot be changed, nor the right to be on campus or to attend classes suspended, except as provided for by the interim suspension rule (K(13)).

*J (10) Verdict and Sanction.*

- a.* After the hearing closes, the panel will consider its verdict and sanction in closed session.
- b.* The verdict is a determination of guilt or innocence. A guilty verdict is based on the existence of clear and convincing evidence that the accused committed the act(s) alleged in the charge.
- c.* The sanction is a statement of the punishment imposed drawn from those enumerated in Section K below.
- d.* Verdict and sanction will be determined by a majority vote of a panel except that any judgment of expulsion (see K(1)) or suspension (see K(2)) must be concurred in by not less than four (4) members of a five (5) member panel nor less than five (5) members of a seven (7) member panel.

*J (11) Special Master.* At any stage in the proceedings, involving complicated technical or professional subject matter, and at the request of any party or any or all members of a panel, a special master may be appointed by the Chairman of the Board in consultation with the appropriate dean. The special master will render advice to the panel. On the motion of any party or any member of the panel, proceedings may be recessed pending the receipt of the special master's report.

*J (12) Rehearing.* A panel by a majority vote may decide to rehear a case in which significant new evidence can be introduced in behalf of the accused.

*J (13) Notification of Verdict and Sanction.*

- a.* The Chairman of the panel will promptly inform in writing the Dean for Student Life of the decision of the panel, but initial notification may be oral followed by the written abstract as required by J(14)*b.*
- b.* The Chairman of the panel or the Dean shall promptly notify the defendant of the verdict and sanction imposed, and shall, at the same time, inform him or her of rights of appeal.
- c.* At the request of the moving party(ies), the Dean for Student Life may, but is not required to, inform that person or persons of the panel's verdict and/or sanction.

*J (14) Record:*

- a.* Tapes: A separate tape recording will be made for each hearing, clearly labelled, and retained for three (3) years.

b. Abstract: A written abstract of each case will be made by completion of a "Hearing Committee Report Form" signed by the panel chairman.

K *Sanctions.* The board is empowered to impose singly or in combination penalties of four (4) classes.

### CLASS I

K (1) *Expulsion.* Dismissal and permanent removal from the University without possibility of readmission or reinstatement. University censure automatically applies.

K (2) *Suspension.*

a. Under the voting rules set forth in J(10)d, dismissal from membership in the University for a specified period of time, ordinarily including the current semester and the next succeeding one, and such additional semesters as deemed appropriate by the panel.

b. The privilege of a residential or of any other cohesive unit to exist at Duke University may be suspended or revoked.

c. Readmission or reinstatement as a student or residential or cohesive unit in good standing is contingent upon satisfaction of any conditions stated in the original sanction.

d. Upon a student's reacceptance to and matriculation in the University or the reinstatement of a residential or cohesive unit to the University, the student or residential or cohesive unit is placed on disciplinary probation K(4) for a specified period of time.

e. As suspension constitutes an involuntary withdrawal from the University, an entry to that effect is made on the student's permanent academic record or the residential or cohesive unit's citizenship record for the duration of the suspension.

f. Residential or cohesive units may be suspended for a specified time period from one or more enumerated activities sponsored, cosponsored, or performed by said residential or cohesive unit.

g. University censure (class II) may be applied as determined by the panel.

K (3) *Suspended Suspension.*

a. For a specified period of time, the penalty of suspension is imposed, but suspended due to the existence of facts deemed mitigating by a panel.

b. A disciplinary probation period must run concurrently and may run consecutively with suspension.

c. As no involuntary withdrawal actually occurs, no temporary entry to that effect is made on the student's permanent record.

K (4) *Probation.*

a. *Disciplinary Probation.* Placing the student or residential or cohesive unit on a probationary status for violation of any regulation may result in suspension if adjudged guilty of subsequent infraction.

b. *Revocation of Disciplinary Probation.* In the event that a student or residential or cohesive unit has been placed on disciplinary probation by the Undergraduate Judicial Board and subsequently is convicted of violation of a regulation by the University Judicial Board, the revocation of his/her/its probation

will not automatically occur. In such a case he/she/it shall be entitled to a hearing before a panel of the Undergraduate Judicial Board, said hearing being limited to the issue of whether his/her/its probation should be revoked as the result of the original conviction and the conduct which gave rise to a second conviction.

K (5) *Exclusion*.

- a. from public participation or performance in the name of the University other than performance of duties as an elective officer.
- b. from application for, retention of, or any other possession of a University housing license.
- c. from access to, use of, and occupation of specified University-owned premise and/or facilities.
- d. from application for, retention of, or any other possession of a traffic and parking permit.
- e. from application for, retention of, or any other possession of IM privileges.

K (6) *Warning*. A formal written admonition but which explicitly states the certainty of a more severe disciplinary sanction for conviction of a subsequent violation during a stated period. A warning may be entered on the student's Dean's card citizenship record or on the residential or cohesive unit's citizenship record at the discretion of a panel.

K (7) *Restitution*. Payment for all or a portion of injury or damages to person(s) or property caused by commission of an offense.

K (8) *Fine*. Payment to Duke University of a reasonable sum of money set by a panel which may also impose a community service sanction as provided for in K(9)a or b below.

K (9) *Community Service*. Specified hours of service set by a panel during which period a student or residential or cohesive unit will perform as either

- a. a regular employee in the University student labor pool, or
- b. a "volunteer" worker in a charitable enterprise in Durham city or county as arranged for and supervised by the Dean for Student Life.

## CLASS II

K (11) *University Censure*.

- a. Official entry on a student's permanent record, of serious misconduct including both the fact of the censure and the exact nature and circumstances of the offense.
- b. This sanction is never applied unless in combination with serious offenses meriting imposition of sanction K(1)-(2). Censure indicates the seriousness of the offense and the absence of mitigating circumstances.
- c. Application of this sanction requires a separate vote of a panel under J(10)d unless accompanying Expulsion K I(l).

## CLASS III

K (12) *Temporary Exclusion*. Exclusion from registration, enrollment, or matriculation at the next ensuing semester, including semesters of summer session or eligibility

to graduate from Duke University pending relief from verdict and sanction by compliance in good faith with the original order, directive or subpoena. This penalty is ordinarily used in contempt proceedings described in I(6) and I(10)d.

K (13) *Interim Suspension.*

- a. An extraordinary remedy invoked only in extreme cases requiring immediate action prior to a panel hearing.
- b. If the Dean for Student Life deems any student's presence on campus, at any time to constitute a threat to the general peace and order of the University community and to its several members that officer may so notify the Provost or Chancellor, who may, in his or her discretion, suspend the named student from the University for a three (3)-day period pending a hearing before a duly constituted panel of the board.
- c. If the student or board requires a continuance the interim suspension may be extended by the Provost or Chancellor or by a duly constituted panel of the board.
- d. If interim suspension is imposed and the accused is later found innocent, the University will grant restitution as provided by the Undergraduate Judicial Board with respect to that student's academic responsibilities incurred during the period of suspension.

K (14) *Temporary Restraining Order.*

- \* a. A formal written ex parte order issued by
  - (1) a duly constituted panel, or
  - (2) the Dean for Student Life in consultation with the Chairman of the Board where possible, directing a named actor(s) to cease and desist from engaging in behavior deemed contrary to one or more provisions of the Undergraduate Code. [See I(6) and K(12)].
- b. Such TROs are of twenty-one (21) days duration but are renewable only through regular panel proceedings.

CLASS IV

K (15) *Counseling Recommendation.* If a panel majority believes that a student would benefit from professional counseling, it may recommend such action to the Dean for Student Life who may so advise the student.

L *Appeal.*

L (1) *Right of Appeal.*

- a. Appellant may appeal any verdict and sanction of the board to the dean of the relevant undergraduate college or school in any case involving academic dishonesty. In all cases involving infractions other than academic dishonesty appellant may appeal the verdict and sanction of the board to the Vice-President for Student Affairs.
- \* b. After consideration by one of the following,
  - (1) The Dean of the appropriate college or school, or
  - (2) the Vice-President for Student Affairs, or
  - (3) The designee of either of the above appellant officers, the second level of appeal shall be the President of the University.



- L (2) *Form and Time of Notice to Appeal.* Notice of appeal must be in writing and submitted to the relevant dean, unless waived by him, within forty-eight (48) hours after receipt of the verdict and judgement.
- L (3) *Form and Time of Actual Appeal.* A written statement clearly and briefly setting forth grounds for appeal must be submitted to the relevant dean, unless waived by the officer within seven (7) days after receipt of the verdict and sanction.
- \* L (4) *Exclusive Grounds for Appeal.*
- a. Procedural error substantially affecting the rights of the accused.
  - b. Incompatibility of the verdict with the weight of the evidence.
  - c. New evidence of a character which may have affected the verdict but on which basis rehearing was denied by the board.
  - d. Proven case of extreme personal hardship as a result of the board's action.
- L (5) *Appeal Procedures.*
- a. The relevant administrative officer of the University may not hear testimony *de novo*.
  - \* b. With the consent of an appellant, the administrative officer may consult with other members of the University community as he/she chooses only to substantiate the grounds for appeal. (See L(5)a.)
  - c. He/she shall receive documents submitted by the panel including tapes, abstracts, written opinions, and dissents.
  - d. The appellant may prepare for his/her defense with the assistance of an adviser and may at his/her expense make a transcription of the tape.
  - e. The appellant must submit a written statement setting forth grounds for his/her appeal as required by L(3) and the supporting arguments.
  - f. The appellant has a right to make an oral statement to the dean to amplify his/her written arguments. This administrative officer may question the defendant at this time about his/her oral statement or written statement, but shall confine himself or herself to the issues on appeal. These additional statements and arguments shall be recorded.
  - \* g. Either the chairman or the relevant hearing panel or the administrative officer charged with the responsibility for hearing the appeal may request a conference between themselves to consider issues arising out of the case. A notation of substantive issues discussed in any such conference shall likewise be incorporated in the record.
  - \* h. In cases where a hearing panel's verdict and/or sanction is reversed, the hearing panel may request a conference with the appellant officer responsible for the reversal.
- L (6) *Appeal to President.* The appellant may appeal an unfavorable decision of the administrative officer to the President of the University who may, in his or her discretion entertain such appeal, under such conditions and with such procedures as he or she may prescribe. The President will notify the Board Chairman of the decision.
- L (7) *Notification.*
- a. In all cases the relevant administrative officer or President of the University will submit to the Chairman of the Board, with a copy to the Dean for Stu-

dent Life a written statement of the decision and reasoning on which it is based.

b. Such administrative officers will promptly communicate their decision to the appellant.

\* c. The appellant officer will inform the moving party(ies) of the outcome of his/her decision.

M *Amendment of Article IV.*

M (1) Article IV, "The Undergraduate Judicial Board," may be amended at any time by the Vice-President for Student Affairs only on the recommendation of a permanent Advisory Committee on Judicial Codes composed of undergraduates, faculty, and deans appointed by and acting under that officer's supervision and direction.

M (2) All amendments promulgated by the Vice-President for Student Affairs shall be effective from and after the date of promulgation.

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\*1988 revision of substance.

# Appendix D

## PICKETS, PROTESTS, AND DEMONSTRATIONS

*Statement of Policy.* Duke University respects the right of all members of the academic community to explore and to discuss questions which interest them, to express opinions publicly and privately, and to join together to demonstrate their concern by orderly means. It is the policy of the University to protect the right of voluntary assembly, to make its facilities available for peaceful assembly, to welcome guest speakers, to protect the exercise of these rights from disruption or interference.

The University also respects the right of each member of the academic community to be free from coercion and harassment. It recognizes that academic freedom is no less dependent on ordered liberty than any other freedom, and it understands that the harassment of others is especially reprehensible in a community of scholars. The substitution of noise for speech and force for reason is a rejection and not an application of academic freedom. A determination to discourage conduct which is disruptive and disorderly does not threaten academic freedom; it is rather, a necessary condition of its very existence. Therefore, Duke University will not allow disruptive or disorderly conduct on its premises to interrupt its proper operation. Persons engaging in disruptive action or disorderly conduct shall be subject to disciplinary action, including expulsion or separation, and also charges of violations of law.

*Rule.* Disruptive picketing, protesting, or demonstrating on Duke University property or at any place in use for an authorized University purpose is prohibited.

*Hearing and Appeal.* Cases arising out of violations of the Pickets and Protests Regulations will be heard by the University Judicial Board, in accordance with the procedures outlined in Appendix C, pages 80-100. The University Judicial Board shall have jurisdiction over members of the student body, members of the faculty, and administrative personnel of the University not subject to the Personnel Policy Handbook. Hearings will be conducted with regard for academic due process. The decision of the University Judicial Board shall be final if the accused is exonerated or if there is no appeal. In other cases, students may appeal to the President, or, in his/her absence, the Provost, in which case such appeal shall be solely on the record of the proceedings before the Hearing Committee of the University Judicial Board. Argument on appeal shall be on written submission, but the President may, in addition, require oral argument.

A Hearing Committee will consist of two faculty members, one dean, and two students. These students will be selected from members of the judicial boards or governments in the undergraduate, graduate, or professional colleges or schools. The Chairman of the Hearing Committee will be designated by its members.

The Hearing Committee will conduct its proceedings in accordance with academic due process.

The decision of the Hearing Committee shall be final if the accused is exonerated or if there is no appeal. In other cases appeal may be taken to the President, in which case such appeal shall be solely on the record of the proceedings before the Hearing Committee. Argument on appeal shall be written submission, but the President may in addition require oral argument.

The procedures for faculty members will follow the arrangements provided under the *Personnel Handbook*.

*Amendments.* These regulations on pickets, protests, and demonstrations may be changed or amended by the University at any time but any such change or amendment shall be effective only after due notice or publication. These regulations supersede any regulations heretofore issued on the subject.

# Appendix E

## RULES GOVERNING DRUG VIOLATIONS

I. Rules governing drug violations at Duke University are as follows.

1. Alleged violations of the policy stated in the first paragraph of the drug policy on page 52 will be adjudicated by the Undergraduate Judicial Board or appropriate deans, or in the case of nonstudents, by comparable authorities and their appointed delegates. It is expected that professional judgment will be exercised in referring indicated cases to University health and counseling services in keeping with the second and third paragraphs of the policy on page 52.
2. The two grounds which may constitute occasion for the assessment of penalties are:
  - a. conviction of a member of the University on a drug charge by a court of law.
  - b. a finding with the appropriate University tribunal, in conformity with the principle of due process, of sufficient evidence that a member of the University has violated the drug policy.
3. The maximum penalty to be imposed within the University upon a student for possession or use of marijuana shall be suspension; for the possession or use of other illegal drugs, or the distribution of any illegal drug, the maximum penalty of the University is expulsion. Other members of the University shall be liable to appropriate comparable penalties.

II. Rules governing drug violations of student athletes at Duke University are as follows.

Duke University prohibits drug use by its student athletes. Prohibited drugs will include anabolic steroids and other performance-enhancing drugs, narcotics and other illegal drugs, and any other drug banned by the National Collegiate Athletic Association (NCAA) legislation. The NCAA requires every student athlete to consent to be tested for prohibited drug usage. But, unlike some other institutions, Duke University will not impose drug testing on all student athletes. To do so would unfairly single out a group of students who are no more likely to use drugs than any other group of students and could contribute to the perpetuation of unfortunate and inaccurate stereotypes. Duke University will not require any student athlete to submit to testing except (i) in compliance with NCAA regulations for NCAA championships and postseason football contests; or (ii) where a coach or the Director of Intercollegiate Athletics has a reasonable and articulable suspicion that the student athlete has used a prohibited drug. In the event that a coach or the athletic director has a reasonable and articulable suspicion that a student athlete has used a prohibited drug and requests that the student athlete submit to testing, the student athlete who refuses to undertake the test, or tests positively for a prohibited drug, may be denied permission by his or her coach to represent the University in intercollegiate events or participate in team practices. The student athlete also may be subject to additional sanctions, including loss of athletically-related financial aid for subsequent semesters. Any student athlete dissatisfied with a determination to reduce or cancel his or her financial aid will have an opportunity to appear at a hearing before and appeal such a determination to the Academic Committee of the Athletic Council.

Testing will be performed in the University's Medical Center Laboratories. A positive test will be repeated to ensure accuracy where it is practicable to do so.

Duke University is committed to a policy of helping any student athlete who recognizes that he or she has a drug problem and asks for help. The first time a student athlete voluntarily seeks help for a drug problem, the appropriate official in the athletic department will provide confidential counseling or other assistance required by the student athlete,

including medical and drug rehabilitation assistance at the University's expense. Unless medically indicated, a first-time drug user will remain eligible to represent the University in intercollegiate events and participate in team practices. His or her coach will not be informed of the drug problem.

If drug use recurs, and a student athlete again voluntarily seeks help for a drug problem, the appropriate official in the athletic department will endeavor to assist the student athlete. The matter will be brought to the attention of the Director of Intercollegiate Athletics. The athletic director may determine in his discretion whether medical and drug rehabilitation assistance sought or needed by a repeat user should be paid for the University; whether the student athlete will remain eligible to represent the University in intercollegiate events or participate in team practices; whether the student athlete's coach will be informed of the drug problem; and whether the student athlete will be subject to additional sanctions, including loss of athletically-related financial aid for subsequent semesters.

Staff members and others employed by the athletic department who have knowledge of the use of a prohibited drug by a student athlete are under an affirmative duty to report such usage to the student athlete's coach or the athletic director.

The effective date of this policy is July 1, 1986. Each student athlete of Duke University will receive a copy of this policy annually.

## Appendix F

### DUKE UNIVERSITY REGULATIONS CONCERNING PAYMENTS OF ACCOUNTS

Basic University policy requires that tuition and mandatory fees be paid in full prior to the beginning of each semester whether an invoice has been received or not. As part of the agreement of admission to Duke University, a student is also required to pay all monthly invoices for any additional charges as presented. These tuition payment plans will offer an alternative for payment of a portion of the charges billed each year. The *Multiple Payment Plan* provides an opportunity to pay tuition, room, and board in nine (9) installments. The *Guaranteed Tuition Plan* (freshmen only) finances and guarantees the amount and rate of tuition for four (4) years through forty-four (44) equal installments (seven [7] semesters through thirty-nine [39] installments for January freshmen) financed at 9½ percent interest. The *Prepaid Tuition Plan* guarantees tuition charges for four years of undergraduate study at the freshman rate. If full payment or arrangement for payment through the two plans is not received, a penalty charge as described below will be assessed on the next monthly invoice and also certain restrictions as stated below will be applied.

*Late Payment Penalty Charge.* If the "Total Amount Due" on an invoice is not received by its due date, the next invoice will show a penalty charge of 1-percent per month assessed on the past due balance regardless of the number of days past due. The "Past Due Balance" is defined as the previous balance less any payments and credits received on or before the due date and also less any student loan memo credits related to the previous balance which appear on the invoice.

*Restrictions.* An individual will be in default of this agreement if the "Total Amount Due" on the student invoice is not paid in full by the invoice due date. An individual who is in default will not be allowed to register for classes, receive a transcript of academic records, have academic credits certified, be granted a leave of absence, or have a diploma conferred upon graduation. In addition, an individual in default may be subject to withdrawal from school.

# Appendix G

## STUDENT HEALTH GRIEVANCE PROCEDURE

Duke Student Health provides a patient advocacy service as part of its health education program. Students who become patients are encouraged to use this service if they have difficulty negotiating the health care system in order to receive timely and satisfactory care. A staff health educator and the Assistant Director of Student Health serve students in an advocacy role. If complaints are in need of further resolution, students can pursue a grievance procedure, designed by the Student Health Advisory Committee (SHAC) in order to facilitate satisfactory resolution of complaints regarding the services rendered.

*Procedure-Phase I.* Any Duke student who feels he or she has a legitimate complaint with regard to services rendered by the Student Health Program is to obtain and complete the grievance form found in the ASDU office and the Dean for Student Life's office. This is to be returned to the Dean for Student Life within seven (7) days of the event.

One copy of the grievance form will go to the Director of Student Health and another to SHAC. After appropriate investigation, the Director of Student Health shall respond to the student in writing, with a copy of the response to SHAC. The event will be discussed by SHAC and a SHAC member will contact the student to be sure he or she is satisfied with the process and outcome. Copies of the grievance form and response will be kept on file with the Director of Student Health. Confidentiality will be maintained throughout the process, with the student's identity being protected.

*Procedure-Phase II.* If the student is not satisfied with the outcome of the procedure, he or she will be asked to submit a statement explaining why.

SHAC will discuss the event and respond to the student.

*Procedure-Phase III.* If the student is still displeased, all of the above forms (grievance form, response, Phase II letter, SHAC response) will be sent to the Vice-President for Student Affairs, and the Chairman of the Department of Community and Family Medicine.

# Telephone Numbers Frequently Used

ADMISSIONS .....	684-3214
ASDU .....	684-6403
Belvin, James-Director of Undergraduate Financial Aid .....	684-6225
BRYAN CENTER INFORMATION DESK .....	684-2323
Bryant, Martina-Associate Dean/Social Science/Trinity College .....	684-2075
BURSAR .....	684-3531
Coon, Susan-Director of the Office of Cultural Affairs .....	684-5578
COUNSELING AND PSYCHOLOGICAL SERVICES .....	684-5100
Cox, Richard-Dean/Residential Life .....	684-6313
CULTURAL AFFAIRS .....	684-5578
Dowell, Earl-Dean of the School of Engineering .....	684-2214
Eisenson, Howard-Director of Student Health .....	684-6721
Eldridge, Albert-Registrar .....	684-3146
EMERGENCY .....	911
ENGINEERING, SCHOOL OF .....	684-2214
FINANCIAL AID .....	684-6225
Friedrich, John-Chairman of Department of Health, Physical Education, and Recreation .....	684-2202
Griffith, William-Vice-President for Student Affairs .....	684-3737
HOUSING MANAGEMENT .....	684-5226
HEALTH, PHYSICAL EDUCATION, AND RECREATION .....	684-2202
INTERNATIONAL HOUSE .....	684-3585
Lattimore, Caroline-Dean/Minority Affairs .....	684-6756
Maskel, Laurence-Director of Placement Services .....	684-3813
McDowell, Homai-Director of the Office of Student Activities .....	684-2163
MINISTER TO THE UNIVERSITY .....	684-2177
MINORITY AFFAIRS .....	684-6756
Moorman, Jane Clark-Director of Counseling and Psychological Services .....	684-5100
Nathans, Elizabeth-Associate Dean/Freshman, Trinity College .....	684-6217
Nijhout, Mary-Associate Dean/Adviser for Health Professions/ Trinity College .....	684-6903
PAGE BOX OFFICE .....	684-4059
Phelps, Jake-Director of University Union .....	684-2911
PLACEMENT SERVICES .....	684-3813
PUBLIC SAFETY .....	684-2444
RESIDENTIAL LIFE .....	684-6313
Roach, Deborah, Assistant Dean/Natural Science/Trinity College .....	684-6536
Shepard, Marion-Associate Dean/Engineering .....	684-2214
Starnes, Marian-Bursar .....	684-3531
STUDENT ACTIVITIES .....	684-2163
STUDENT AFFAIRS .....	684-3737
STUDENT HEALTH .....	684-6721
STUDENT LIFE .....	684-6488
Thomason, Fidelia-Director of Housing Management .....	684-5226
TRINITY COLLEGE .....	684-3465
UNION .....	684-2911
Wasiolk, Suzanne-Dean/Student Life .....	684-6488
Weller, Robert-Assistant Dean/Trinity College .....	684-5012
White, Richard-Dean of Trinity College and of Arts and Sciences .....	684-3465
Willimon, William-Dean of the Chapel .....	684-2177
Wilson, Gerald-Senior Associate Dean/Trinity College/Prelaw Advisor .....	684-2865
Wittig, Ellen-Associate Dean/Humanities, Trinity College .....	684-5585
EMERGENCY-911	

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